City of St. Helena
Planning Commission
Regular Meeting
Tuesday, March 19, 2019 @ 6:00 PM
Vintage Hall Board Room - Second Floor
465 Main Street, St. Helena

PLEASE NOTE: Any person who wishes to speak regarding an item on the agenda or make a comment under the "Oral Communication" portion of the agenda may do so, but please observe the time limit of four minutes.

Page

1. PLEDGE OF ALLEGIANCE

2. CALL TO ORDER AND ROLL CALL
Chairperson: Lester Hardy
Vice Chair: John Ponte
Commissioners: Daniel Hale, Bobbi Monnette and Autumn Anderson
City staff present at the meeting will be noted in the minutes.

3. PUBLIC FORUM:
This is an opportunity for the public to address the Commission on items of interest to the public that are NOT listed on the agenda. Because of restrictions imposed by the Brown Act, the Commission may not engage in discussion nor take action on matters not described on the agenda. **Please observe the time limit of four minutes.**

4. CONSENT ITEMS
Members of the Commission or the public may ask that any items be considered individually for purposes of considering alternative action, for extended discussion, or for public comment. Unless that is done, one motion may be used to adopt all recommended actions. (Roll Call Vote)

4.1. Approval of Minutes: March 5, 2019 — 5 - 8
Commission Minutes 03-05-19

5. PUBLIC HEARINGS

5.1. Review and Recommendation to the City Council of the draft St. Helena 2040 General Plan Update and draft Final Program Environmental Impact Report (EIR), including the Response to Comments, Mitigation Monitoring and Reporting Program (MMRP) and proposed Statement of Overriding Considerations, including all properties Citywide and in three specific Study Areas located to the south and east of the current St. Helena City limits, as identified therein. — 9 - 2301

CEQA Determination: Environmental Impact Report
Prepared By: Noah Housh, Planning & Community Improvement Director
Recommendation:
It is recommended by the Planning and Community Improvement Department that the Planning Commission:

1. Review the prepared Final Program EIR for the 2040 General Plan and potential project alternatives and provide comments and recommendations to the City Council regarding the adequacy of this analysis and the preferred alternative; and

2. Provide additional input regarding the additional economic, legal, social, technological or other benefits associated with the recommended alternative which would support the adoption of a statement of overriding considerations for the significant and unavoidable environmental impacts associated with the preferred General Plan project.

Staff Report
GP_Comment(1)_Ruston
Consultant Presentation- Dyett & Bhatia

6. SCHEDULED MATTERS

6.1. Use of Official Zoning Code Interpretations to Clarify Code Requirements 2303 - 2306

CEQA Determination: Not a CEQA Project
Prepared By: Noah Housh, Planning & Community Improvement Director
Recommendation:
It is recommended that the Planning Commission review the Official Zoning Code Interpretation Number One to provide input regarding the clarity of the language, and the position being articulated.

Use of Official Zoning Code Interpretations to Clarify Code Requirements - Staff Report

7. DEPARTMENT REPORTS
This is an opportunity for staff to report on or update the Commission on any relevant matters.

8. AGENDA FORCAST
Below is a a link to a list of pending and upcoming projects which may be of interest to the community.

This is also an opportunity for the Commission as a whole to request items be placed on future agendas for discussion. These items should be consistent with, and work to implement adopted Council Goals.

A list of all current planning projects is available on our city website in the link below:
http://www.cityofsthelena.org/projects?term_node_tid_depth=21

Please contact the assigned project Planner for additional questions.

9. ADJOURNMENT
The next Regular Planning Commission meeting is scheduled for April 2, 2019, at 6:00 p.m. in the Vintage Hall Board Room located at 465 Main Street.

This agenda was posted at City Hall, 1480 Main Street, and at Vintage Hall, 465 Main Street, St. Helena, California on March 12, 2019.

Noah Housh, Planning Director

Appeal. A person who is dissatisfied with a decision of the Planning Commission may appeal that decision to the City Council pursuant to Municipal Code Section 17.08.180, Appeal procedure. Actions of the Planning Commission will be listed on the City Council agenda the following Tuesday to give the City Council opportunity to review the Planning Commission's decision. Absent of an appeal by the City Council or by a citizen, the appeal period will terminate two weeks after the Planning Commission hearing.

Special Assistance for the Disabled. In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please call the City Clerk's Office (707) 967-2792. Notification 48 hours prior to the meeting will enable City to make reasonable arrangements to ensure accessibility to this meeting (28 CFR35.102-35.104 ADA Title II). However, City staff will attempt to assist at any time with accessibility. The City Clerk has equipment to assist those with a hearing impairment.

PUBLIC TESTIMONY PROCEDURES

Pursuant to the Government Code Section 54954.3, the public may address the Commission on each agenda item during the Commission's consideration of that item. Each speaker has the option to state his or her name for the record before testifying. Depending on the number of speakers or the interest of the item, the Planning Commission Chairman may also restrict, at his/her discretion, the speaker's time to three minutes. The

Chairman may also restrict public comments if they become irrelevant to the agenda item or repetitious of prior comments. All persons interested may appear and be heard or submit written statements prior to the Planning Commission meeting. Please note that if you challenge the City's decision on any of these matters in court, you may be limited to raising only those issues you or someone else raised at the meeting or in written correspondence delivered to the City at, or prior to, the meeting.

CHALLENGING DECISIONS OF CITY ENTITIES

The time limit within which to commence any lawsuit or legal challenge to any quasi-adjudicative decision made by the City of St. Helena is governed by Section 1094.6 of the Code of Civil Procedure, unless a shorter limitation period is specified by any other provision, including without limitation Government Code section 65009 applicable to many land use and zoning decisions, Government Code section 66499.37 applicable to the Subdivision Map Act, and Public Resources Code section 21167 applicable to the California Environmental Quality Act (CEQA). Under Section 1094.6, any lawsuit or legal challenge to any quasi-adjudicative decision made by the City must be filed no later than the 90th day following the date on which such

decision becomes final. Any lawsuit or legal challenge, which is not filed within that 90-day period, will be barred. Government Code section 65009 and 66499.37, and Public Resources Code section 21167, impose shorter limitations periods and requirements, including timely service in addition to filing.

If a person wishes to challenge the above actions in court, they may be limited to raising only those issues they or someone else raised at the meeting described in this notice, or in written correspondence delivered to the City of St. Helena, at or prior to the meeting. In addition, judicial challenge may be limited or barred where the interested party has not sought and exhausted all available administrative remedies.

SUPPLEMENTAL MATERIAL RECEIVED AFTER THE POSTING OF THE AGENDA

Any supplemental writings or documents distributed to a majority of the Planning Commission regarding any item on this Agenda, after the posting of the Agenda, will be available for public review in the Planning Department's Office located at 1480 Main Street, St. Helena, California, during normal business hours. In addition, such writings or documents will be made available on the City's web site at http://cityofsthelena.org and will be available for public review at the respective meeting.

MINUTES
City of St. Helena
Planning Commission Meeting
Tuesday, March 5, 2019 @ 6:00 PM
Vintage Hall Board Room - Second Floor
465 Main Street, St. Helena

A complete video recording of this meeting, except for closed session, can be found at https://sthelena.civicweb.net/Portal/ or by calling the City Clerk at (707) 967-2792. The City Council video is the official record of the Council meeting.

Present:	Chair Lester Hardy, Vice-Chair John Ponte, Commissioner Autumn Anderson, Commissioner Bobbi Monnette, and Commissioner Daniel Hale
Absent:	None
Staff Present:	Noah Housh, Planning & Community Improvement Director, Erica Ahmann Smithies, Public Works Director and City Engineer, Kevin Siegel, City Attorney, Aaron Hecock, Senior Planner, and Xinia Gamero, Administrative Assistant

1. PLEDGE OF ALLEGIANCE

2. CALL TO ORDER AND ROLL CALL

3. PUBLIC FORUM:

4. CONSENT ITEMS

4.1 Approval of Minutes: February 19, 2019

Commissioner Bobbi Monnette moved to approve the Minutes on the Consent Calendar. The motion was seconded by Commissioner John Ponte and on roll call carried by the following vote:

AYES: Lester Hardy, John Ponte, Autumn Anderson, Bobbi Monnette, and Daniel Hale
NOES: None
ABSENT: None
ABSTAIN: None
RECUSE: None

Chair Hardy approved a request from Planning and Community Improvement Director, Noah Housh to move the hearing of Scheduled Matters item 6.1 prior to Public Hearing item 5.1

Commissioners Monnette and Anderson disclosed living on a street proposed for a bike path under the Countywide Bicycle Plan.

~~5.~~ **~~PUBLIC HEARINGS~~**

5.1 ~~Consideration and recommendation of an Ordinance amending St. Helena Municipal Code Section 17.08.060 to authorize City Council Subcommittee review of water usage data to verify that recipients of discretionary land use permits and approvals comply with water-related representations made during project review and with water-related conditions of project approval.~~

~~CEQA Determination: Exempt pursuant to CEQA Guidelines Section 1506(b)(3).~~
~~Prepared By: Thomas B. Brown, City Attorney~~
~~**Recommendation:**~~
~~1. Review the attached Ordinance amending the Zoning Ordinance, SHMC Section 17.08.060, and recommend approval and adoption by the City Council.~~

6. SCHEDULED MATTERS

6.1 Napa Valley Transportation Authority (NVTA) presentation of the Countywide Bicycle Plan

CEQA Determination: Anticipated to be a Mitigated Negative Declaration
Prepared By: Noah Housh, Planning & Community Improvement Director
Recommendation:
It is recommended that the Planning Commission review and comment on the 2019 Countywide Bicycle Plan Update.

Erica Ahmann Smithies, Public Works Director and City Engineer reported on the item.

Danielle Schmitz provided a presentation to the Planning Commission.

Chair Hardy opened public comment.

Denise Henquet, Christopher Cole, Pam Smithers and Anthony Micheli addressed the Commission.

Chair Hardy closed public comment.

The Planning Commission reviewed and commented on the 2019 Countywide Bicycle Plan Update.

Chair Hardy proceeded with the hearing of item 6.2.

6.2 Downtown Streetscape Presentation by Gates and Associates

Erica Ahmann Smithies, Public Works Director and City Engineer reported on the item.

Linda Gates from Gates and Associates provided a presentation to the Planning Commission.

Chair Hardy opened public comment.

Anthony Micheli addressed the Commission.

Chair Hardy closed public comment.

5. PUBLIC HEARING

5.1 Consideration and recommendation of an Ordinance amending St. Helena Municipal Code Section 17.08.060 to authorize City Council Subcommittee review of water usage data to verify that recipients of discretionary land use permits and approvals comply with water-related representations made during project review and with water-related conditions of project approval.

Recommendation:

1. Review the attached Ordinance amending the Zoning Ordinance, SHMC Section 17.08.060, and recommend approval and adoption by the City Council.

Kevin Siegel, City Attorney reported on the item.

Chair Hardy opened public comment.

Anthony Micheli addressed the Commission.

Chair Hardy closed public comment.

Commissioner John Ponte moved to approve staff recommendation as amended. The motion was seconded by Commissioner Bobbi Monnette and on roll call carried by the following vote:

AYES: Lester Hardy, John Ponte, Autumn Anderson, Bobbi Monnette, and Daniel Hale
NOES: None
ABSENT: None
ABSTAIN: None
RECUSE: None

7. DEPARTMENT REPORTS

Noah Housh, Planning and Community Improvement Director reported on the following:

- General Plan EIR response to comments and General Plan 2040 to be presented at the Planning Commission meeting of March 19, 2019

8. AGENDA FORCAST

9. ADJOURNMENT

Chair Hardy adjourned the meeting at **8:32 P.M.**

APPROVED:	**ATTEST:**
_____	_____
Lester Hardy, Chair	Noah Housh, Planning and Community Improvement Director

PLANNING COMMISSION REPORT

Planning Commission Meeting of March 19, 2019

AGENDA SECTION: Public Hearing

SUBJECT: Review and Recommendation to the City Council of the draft St. Helena 2040 General Plan Update and draft Final Program Environmental Impact Report (EIR), including the Response to Comments, Mitigation Monitoring and Reporting Program (MMRP) and proposed Statement of Overriding Considerations, including all properties Citywide and in three specific Study Areas located to the south and east of the current St. Helena City limits, as identified therein.

PREPARED BY: Noah Housh, Planning & Community Improvement Director

REVIEWED BY: Noah Housh, Planning & Community Improvement Director

APPROVED BY: Noah Housh, Planning & Community Improvement Director

APPLICATION FILED:04/16/07 **ACCEPTED AS COMPLETE:**02/20/18

LOCATION OF PROPERTY: Citywide and in Specific Study Areas to the South and East of the City Boundary

APN: Citywide and in Specific Study Areas to the South and East of the City Boundary

GENERAL PLAN/ZONING: All designations Citywide and certain County designations in Specific Study Areas to the south and east of the City boundary

APPLICANT: City of St. Helena **PHONE:** 707-968-2659

BACKGROUND

The General Plan update formally began in April 2007, with the "Community Visioning and Existing Analysis" process undertaken by the General Plan Update Steering Committee (GPUSC). This effort involved extensive community input leading to the preparation of first full draft of the General Plan in the summer of 2010. Concurrently, environmental analysis was also taking place and lead to the completion of the General Plan Update Draft EIR in August 2010.

The General Plan Update Draft EIR was subsequently circulated for public review, comments were received, and a Final EIR (FEIR) was prepared in October 2010 in accordance witht he requirements of CEQA. The Planning Commission completed its review and recommended City Council approval of the document in October 2010.

During the City Council review in late 2010, a number of issues surfaced, most notably concerning water supply. Ultimately, the City Council decided to postpone action on the General Plan in order to appropriately address the issue of water supply. A “Safe Yield Committee” was formed and a Water Management Program was developed. The Water Management Program was adopted by Council in November 2012, and thereafter incorporated into the draft General Plan (see Element Four-Public Facilities and Services).

The City Council continued with a detailed review of the draft General Plan during numerous hearings held from late 2013 through June of 2014. In the late summer and fall of 2014, the Planning Commission reviewed the various changes made by the Council since the Commission had reviewed the General Plan in October 2010. However, no significant action was taken to formally update the associated EIR, as the focus appears to have been on updating the General Plan document itself. During this time frame, the Planning and Community Improvement Department also experienced significant staff turnover, impacting the ability for the City to efficiently manage the EIR and General Plan update process.

On April 15, 2015, the City Council held a Study Session on the St Helena General Plan update, and provided direction to City staff regarding the creation of a new residential land use category, Low-Medium Density Residential. This designation was intended to better fit the existing density and development pattern of a majority of the City’s single family neighborhoods (which are primarily developed at approximately 5-6 units per acre) than the current Medium Density Residential designation which allows an unusually wide density range of 5 to 16 dwelling units per acre.

Between April and August of 2016, the Planning Commission held six study sessions to review the 2016 draft of the St Helena General Plan Update (April 19, 2016, May 17, 2016, June 7, 2016, June 21, 2016, and July 19, 2016, and August 2, 2016).

At the July 19, 2016, Planning Commission meeting the Chairperson and Vice Chairperson, presented a compilation of the comments and direction concerning the General Plan taken from the preceding Commission Study Sessions. This summary augmented and clarified the summary contained in the staff report prepared for the meeting. The Commission spent the majority of the July 19, 2016, Study Session reviewing and discussing the summary as prepared by the Commission Chair and Vice Chair. After a thorough discussion of the document, the Commission directed staff to incorporate into the summary the various changes/edits as agreed to by the Commission and further directed that staff present this revised summary to the Commission at the August 2, 2016, Commission meeting, which occurred.

On January 9, 2018, the City Council approved a contract with Dyett and Bhatia to finalize the St Helena 2040 General Plan Update and draft a new EIR for the document. In approving this contract, concerns over finalizing the scope of the General Plan Update and EIR analysis were expressed by the City Council.

On February 20, 2018, the Planning Commission and City Council met at a Joint Meeting to provide input and finalize the scope of both the 2040 General Plan Update and the resulting environmental analysis (EIR) required to analyze the project under the California Environmental Quality Act (CEQA). The final scope of the General Plan Update was determined at this meeting, including input on the planned Study Areas located outside of the City boundary and co-terminus Sphere of Influence (SOI).

On April 1, 2018, the City issued a Notice of Preparation (NOP) informing community members, Responsible Agencies and all other parties interested in the City's 2040 General Plan Update that an EIR analysis was going to commence. This NOP requested input from all interested parties regarding the Scope of the EIR analysis, with comments being requested between April 1, 2018 - May 1, 2018. The City held an EIR Scoping meeting at 6:00 pm on April 17, 2018, in the Vintage Hall Board Room, 265 Main St, St. Helena CA, to allow interested individuals to provide their input and feedback to directly to the Planning Commission, City staff and the CEQA consultant. A summary of all comments received during this period is attached.

On August 14, 2018, the Planning Commission and City Council met at a Joint Meeting to provide final direction and input on the scope of both the 2040 General Plan Update and the resulting environmental analysis (EIR) required to analyze the project under the California Environmental Quality Act (CEQA). This meeting provided another opportunity for the public, Responsible Agencies and any other interested party to provide input on the proposed scope of the EIR and/or General Plan Update.

On October 23, 2018, the City of St. Helena published the draft EIR for public review and comment, proving a 72-day comment period rather than the typical (and legally required) 45-day review and comment period. This period ended on January 2, 2019, and work began on the draft Final EIR, including the Response to Comments.

PROJECT DESCRIPTION

The project before the Planning Commission is the review and recommendation to the City Council, of the City of St. Helena 2040 General Plan Update and associated Program Environmental Impact Report (EIR). The 2040 General Plan, while informed by elements of the existing 1993 General Plan, is a complete update to the City's primary guiding policy document (the General Plan) and includes all elements and actions necessary to revise and replace the existing 1993 St. Helena General Plan.

ANALYSIS

2040 General Plan Update

Consistent with the procedural direction provided in Chapter 17.12 of the St. Helena Municipal Code, the Planning Commission is being presented with the Hearing Draft of the St. Helena 2040 General Plan and Final Program EIR for review and a recommendation, prior to the documents being presented to the City Council for final action and certification. This General Plan Update is a complete and comprehensive re-write of the City's current 1993 General Plan, providing updated and expanded policy direction for nearly every aspect of City operations.

The General Plan is a policy document that serves as the City's "constitution" or "blueprint" for all future land use, development, infrastructure, circulation and agricultural conservation decisions. General Plans must be comprehensive and long-term and therefore the 2040 General Plan Update presents a vision for the City's future and a strategy to make that vision a reality, while also presenting policies to guide day-to-day decisions of the City. As summarized below, the Plan is the result of hundreds of hours of public meetings and the collective efforts of numerous individuals from throughout the City who have articulated their hopes and expectations for the future.

As a comprehensive update, the 2040 General Plan provides a framework for the City's physical, economic, and social development, while also looking to preserve and protect environmental and agricultural resources within the community. It addresses all geographic areas within the City (and for the first time), begins to look at areas beyond the City's boundary, but where City services are provided and where external actions and development may affect City residents and the provision of these services.
The 2040 General Plan Update is broken in 13 chapters (Introduction; Land Use and Growth Management; Economic Sustainability; Public Facilities and Services; Circulation; Historic Resources; Community Design; Open Space and Conservation; Public Health; Safety and Noise; Climate Change; Housing (previously adopted in 2015); Parks and Recreation; and Arts and Culture), and sets forth a purpose, key findings, goals, policies and programs for each Element discussed in these individual chapters.

Process Summary
As identified above, the City began the update process in April of 2007, creating a General Plan and Update Steering Committee (GPUSC) and initiating a Community Visioning and Existing Conditions Analysis which went through February 2008. Following this community engagement process, a Policy and Physical Framework Development phase began, utilizing multiple land use and design charrettes to further engage the community, exploring key land use issues and opportunities. In April 2009, formal development of the draft General Plan document began and eight individual GPUSC meetings were held to review iterative drafts of the document. Two additional community design workshops were held in fall of 2009, to specifically discuss community design and circulation, which were followed by additional public meetings in early 2010 to review the entire draft document. The forth phase of the creation and adoption process began in summer of 2010, however this process stalled due to a number of factors including drought driven concerns over the City's water supply and infrastructure, staffing impacts in City Hall and a series of changes in State level policy

and regulations affecting the general plan drafting and update process. More detail is provided on each of these phases in Chapter One of the General Plan itself.

Through this twelve-year process, the core of the General Plan Update document has remained significantly intact from a policy perspective, including the established purpose, key findings, goals, policies, and programs identified and prioritized (in each of the chapters) by the community. The primary changes in the document have resulted from updates to regional plans and supporting documentation, changes in regulations and requirements at the State level and some minor language and policy changes initiated at the recommendation of the consultant, the Planning Commission and City Council. Specifically and in addition to the scope of the policy revisions, the 2040 General Plan does identify thirteen 'Land Use Change Areas' (where existing land use designations are proposed to be modified), and three 'Study Areas' located just beyond the established City boundary and co-terminus Sphere of Influence.

In accordance with common and generally accepted planning practice, the amount of development studied in the EIR is a reasonably foreseeable projection of the growth in population, housing units, and employment likely to occur by 2040 with implementation of the proposed General Plan Update. This projection was based on an analysis of building permits, development trends, and pipeline projects in St. Helena and was developed with reference to past and projected population, housing and employment data from the California Department of Finance and the Association of Bay Area Governments (ABAG). The growth projection assumes the development of opportunity sites in the City’s adopted 2015-2023 Housing Element as well as additional residential and non-residential development, primarily in key change areas, through 2040. The growth projection assumed in the EIR represents the maximum increment anticipated under the 2040 General Plan. Any new development potential above the amount identified in and studied in the EIR would require additional environmental review and an amendment to the general plan.

Scope of the 2040 General Plan Update

As identified above, the 2040 General Plan Update is a comprehensive revision of the City's guiding policy document the General Plan. As such, it includes both the legally required General Plan elements (Land Use; Circulation; Open Space and Conservation; Public Health, Safety and Welfare; and Housing) as well as a number of additional elements (Economic Sustainability; Public Facilities and Services; Historic Resources; Community Design; Climate Change; Parks and Recreation; and Arts and Culture) intended to specifically address and implement the community's vision and over-arching goals. Each of these Elements identifies Goals, Polices and Implementing Actions associated with how the individual element is to be approached through City policy and action over the life of the Plan.

As part of the Update and environmental review process, the City considered the amount of new development that could reasonably be anticipated to occur throughout the city (including within the 13 proposed "change areas") through 2040, based on

existing and proposed land use designations. This development potential was broken down by land use types, gross floor area, number of housing units, and number of hotel rooms, jobs, etc. An environmental impact report (EIR) was prepared that analyzed the potential for environmental impacts associated with all elements of the proposed 2040 General Plan, including subsequent development, infrastructure needs and future service levels.

Given that this is a comprehensive update based on hours of public engagement and community input which proposes changes through out the City, staff would direct interested individuals to review the draft 2040 General Plan itself for information on this Update. However, information is provided below on some of the more significant land use changes proposed with the Plan.

Thirteen Change Areas
The most substantial land use changes in the 2040 Update are identified in the 13 "change areas", where the General Plan designations for approximately 50 parcels are proposed to be changed or modified. These are identified beginning on page 2-21 (and including Figure 2.8) of the General Plan document. Most changes intensify land use on parcels within close proximity to the City core, however a few of the change areas include modification of the Urban Limit Line and reducing the allowable densities on several parcels.

Creation of the Mixed-Use Land Use Designation
One of the more notable change areas identified and discussed above, is the creation and application of a Mixed-Use land use designation to (approximately) 22 parcels totaling (approximately) 31.73 acres within St. Helena. This is most notable as there is currently no such land use designation on any parcels within St. Helena. The 2040 General Plan describes this designation as:

Mixed-Use (MU). The MU land use designation allows medium- to high-density residential mixed with retail, office, restaurant, or other commercial uses. The maximum allowable residential density in MU areas is 20 dwelling units per acre. The intent of this land use designation is to protect the Urban Limit Line by encouraging a mix of uses at infill locations and reduce greenhouse gas emissions by locating housing opportunities within close proximity to commercial and retail.

CEQA
After awarding the contract to Dyett and Bhatia, and finalizing the scope of the General Plan Update with the Planning Commission and City Council, the CEQA review process began in earnest. The first step in this process is to request comments and guidance on the scope and content of the EIR from responsible and trustee agencies, interested public agencies, organizations, and the general public (CEQA Guidelines §15082). This is done through the issuance of a Notice of Preparation (NOP), which the City issued on April 2, 2018, requesting that all comments be provided by May 1, 2018. The Planning

Commission held a public scoping meeting on April 17, 2018, to both solicit verbal comments from interested individuals whom may not want to provide written comments, and to allow clarifying questions and answers to be discussed prior to the submission of written scoping comments. The EIR scoping process identified significant community concern in the areas of traffic, emergency evacuation and access, including flooding, and water supply.

After the conclusion of the scoping period, the City (through the consultant) formally began the analysis portion of the EIR, analyzing potential impacts of the proposed 2040 General Plan Update. The EIR analyzed all areas of potential environmental impacts required under CEQA and included analysis of project specific impacts as well as cumulative impacts likely to result from implementation of the project.

This Draft EIR was circulated for a 72-day public review and comment period (extended beyond the required 45-day comment period to accommodate for holiday impacts and schedules) to allow responsible agencies as well as other interested agencies and the general public an opportunity to comment on the draft EIR. This comment period began on October 23, 2018, and ended on January 2, 2019. Similar to the scoping process, a public hearing to receive oral comments was held with the Planning Commission on December 4, 2018, at Vintage Hall, 465 Main St, St Helena, CA 94574.

Public Comments
During the comment period, over 350 individual comments were received, however many were specific to the 2040 General Plan itself, rather than the EIR analysis. While not legally required to generate a response, staff has directed the consultant to provide formal responses to comments which question the legal adequacy of the on the 2040 General Plan Update, as well as comments on the EIR itself (which do legally require a response).

Public and Agency Comments on the General Plan
Overall, public and agency comments on the Draft General Plan generally included recommendations for minor edits to improve the clarity of information in the document and did not recommend substantive changes to the content or policy framework. These edits are reflected in the Hearing Draft General Plan included as Attachment 1. to this packet. A punch list of edits made to create the Hearing Draft is included as Attachment 2. for reference.

Some of the public and agency comments on the Draft General Plan warrant highlighting here, as they relate to the legal requirements for a general plan or because they require further consideration or direction from the Planning Commission and City Council:

Levee/Floodwall Failure: One commenter requested a map of areas at risk in the event of levee/floodwall failure be included in the General Plan and provided several comments related to associated risks. A detailed response to these comments is

included in the Final EIR, included in this packet as Attachment XX. In summary, the requirement for inclusion of a map of areas at risk in the event of levee/floodwall failure does not apply to St. Helena and maps already included in the Draft General Plan fulfill the basic requirements for the Safety Element. Nevertheless, a separate map showing the area potentially affected by a levee or floodwall failure is provided for informational purposes in the Final EIR. It depicts an area substantially similar to the FEMA FIRM area depicted on Figure 9.1 of the Draft General Plan.

Farmland Mitigation: In response to a comment from the Division of Land Resource Protection of the California Department of Conservation, a new action (LU5.I) regarding the establishment of a farmland mitigation program has been incorporated into the General Plan to offset the loss of prime farmland in St. Helena as development occurs. While the Draft EIR cited numerous policies in the Draft General Plan which address the potential loss of prime farmland, the Division pointed out that, under CEQA, lead agencies must consider all feasible measures that address significant impacts and as such this additional action has been added to the General Plan to fulfill this legal requirement. Nevertheless, as noted in the Final EIR, even with the addition of this implementing action and implementation of other Proposed Plan policies that would reduce the impact as cited in Section 3.2 of the Draft EIR, the impact would remain significant and unavoidable as agricultural land is a finite and irreplaceable resource.

Land Use Element Action LU1.A: A commenter has pointed out that a portion of this action in the Draft General Plan – specifically the section that reads “consider allowing the division of single-family homes into two or more units under appropriate circumstances” -- could be construed as being in conflict with recent State law regarding Accessory Dwelling Units (ADUs), given that ADUs need not be detached from the main dwelling unit and can be created from extensions or divisions of the main unit. To eliminate this issue, one solution would be to strike the quoted portion from the text of the action; however, staff requests direction from the Commission regarding this edit.

Noise Evaluation Criteria: One commenter pointed out that the 1993 General Plan included a criterion whereby “An increase in the noise environment of 5 dBA or greater is considered to be subjectively significant and to constitute noise impact by the noise source in question” and recommended that this criterion be re-instated. Such a criterion is typically used in noise impact analysis under CEQA and is found in other California General Plans. Staff notes that as described in detail in Chapter 3.11 of the Draft EIR, buildout of the Proposed General Plan is not anticipated to increase noise levels greater than 3dBA CNEL over existing conditions. Staff requests direction from the Commission regarding this edit.

Implementation of Pedestrian Improvements: The Napa Valley Transportation Authority (NVTA) requested inclusion of an action to implement the improvements identified for St. Helena in the 2016 Napa Countywide Pedestrian Plan. To address this comment, the following action could be added to the General Plan: “Coordinate with NVTA, Napa County, and property and business owners and seek funding to implement

the improvements identified for St. Helena in the 2016 Napa Countywide Pedestrian Plan." Staff requests direction from the Commission regarding this edit.

Public and Agency Comments on the EIR
The Final EIR contains the full text of all written public and agency comments on the Draft EIR as well as a summary of oral comments made at the December 4, 2018 Planning Commission meeting. Responses to these comments are presented alongside the original comment in a matrix in the Final EIR for ease of reference. The responses provided represent corrections or clarifications to the Draft EIR and do not constitute significant new information pursuant to Section 15088.5 of the CEQA Guidelines; this new information merely clarifies and makes insignificant changes to an adequate EIR. Information presented in the Draft EIR and this document support this determination.

Summary of CEQA Findings
As shown in the EIR's Table ES-4: Summary of Impacts and Mitigation Measures, implementation of the 2040 General Plan Update will result in several significant and unavoidable environmental impacts, including impacts related to agricultural resources; air quality; energy; greenhouse gas emissions and climate change; and traffic and circulation. These impacts will remain significant and unavoidable even after the implementation of all feasible mitigation measures. It is not uncommon for an EIR to find significant environmental impacts for which there are no feasible mitigation measures available to completely reduce the level of impact to a "less than significant" level.

It should be noted that significant and unavoidable impacts from the Plan related to air quality; energy; greenhouse gas emissions and climate change; and traffic and circulation are cumulative in nature, anticipated to result from implementation of the Proposed Plan in combination with other past, present and reasonably foreseeable projects in the surrounding area and the wider region. Consequently, action by the City alone is not sufficient to avoid these impacts or to reduce them to a "less than significant" level. For that, additional action at the regional or state level would be required; however, no such action at the regional or state level has yet been identified and it is beyond the City authority to bring about such action.

The Draft EIR evaluated two alternatives to the Proposed Project, including the No Project Alternative, which represents the continuation of the City's currently adopted 1993 General Plan, and the Transportation Network Enhancement Alternative, which proposes improvements to the transportation network to facilitate access through the community for local residents traveling by all modes of transportation. While the proposed land use diagrams of the two alternatives and the Proposed Plan are similar, the policies included in the No Project Alternative in many cases do not address the broad range of environmental topics covered by the Transportation Network Enhancement Alternative and Proposed Plan, and are not up to date with current laws and practices concerning environmental impacts. Therefore, of the two alternatives analyzed, the Transportation Network Enhancement Alternative was identified as the environmentally superior alternative. However, while the Transportation Network Enhancement Alternative could relieve impacts related to vehicle congestion and

improve access to transportation, making it the environmentally superior of the two alternatives, the proposed extension of Oak Street under this alternative would result in several new potentially significant environmental impacts related to noise, air pollutants, GHG emissions, and hydrology not present with the Proposed Plan. Therefore, overall, the Proposed Project was found to have fewer potentially significant and unavoidable impacts than either the Transportation Network Enhancement Alternative and the No Project Alternative.

In such cases, CEQA does not preclude the lead agency from proceeding with the project. In order to approve the 2040 General Plan Update despite its significant and unavoidable impacts, the City Council will have to make a specific finding called a "statement of overriding considerations" (consistent with CEQA Guidelines Section 15093) to explain the specific economic, legal, social, technological or other benefits of the 2040 General Plan Update that, on balance, outweigh and make the Plan's significant and unavoidable impacts acceptable. The attached resolution includes some of the reasoning and justification supporting the Council to make such a statement. However, the final information supporting such statements will be influenced by the chosen alternative (environmental superior or proposed project) and comments and information received from the Planning Commission and City Council.

If the Planning Commission recommends, and the City Council certifies the EIR for the 2040 General Plan Update, all future projects will be subject to any applicable mitigation measures contained in the adopted mitigation monitoring and reporting program (MMRP). Further, any projects that are within the parameters of the Update may tier from the certified EIR when conducting their CEQA analysis. However, depending on the proposed project, further project-specific environmental analysis may be necessary. Any increases in the development potential beyond those analyzed, either as a general plan amendment, rezoning or project specific intensity not analyzed in the EIR analysis, would be required to undergo separate environmental review.

ISSUES

The primary outstanding issues for the Planning Commission to consider are:

1. Which project alternative does the Commission recommend to the City Council for adoption and ultimate implementation, the proposed project which is the 2040 General Plan or; the Transportation Network Enhancement Alternative (determined to be the environmentally superior alternative)?

2. What additional economic, legal, social, technological or other benefits identified in the recommended alternative should be included in the decision to support that project?

CORRESPONDENCE

All comments received have been provided, responded to and in some cases thoroughly discussed in the attached documents. Prior to the publication of this report,

one public comment was provided which identified concerns over policy language which suggests the construction of a parking lot on Church Street in Change Area 10.

STAFF RECOMMENDATION

It is recommended by the Planning and Community Improvement Department that the Planning Commission:

1. Review the prepared Final Program EIR for the 2040 General Plan and potential project alternatives and provide comments and recommendations to the City Council regarding the adequacy of this analysis and the preferred alternative; and

2. Provide additional input regarding the additional economic, legal, social, technological or other benefits associated with the recommended alternative which would support the adoption of a statement of overriding considerations for the significant and unavoidable environmental impacts associated with the preferred General Plan project.

ATTACHMENTS

1. PC Reso-GP and EIR Recommendation-draft
2. St. Helena 2040 General Plan Final Plan Compiled
3. GP Public and Agency Comment Punchlist
4. St. Helena FEIR-Comments, Responses, Graphics and Figures
5. St. Helena GPU EIR - MMRP-Final
6. Public Comment
7. FW_ Church Street city proposal
8. Levee Failure Inundation Area Graphic
9. All Comment Letters FEIR
10. St. Helena 2040 General Plan Update DEIR October 2018
11. St. Helena 2040 General Plan Update DEIR October 2018 Appendices

CITY OF ST. HELENA PLANNING COMMISSION

RESOLUTION PC20xx-xx

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF ST. HELENA RECOMMENDING TO THE CITY COUNCIL APPROVAL OF THE ST. HELENA 2040 GENERAL PLAN UPDATE AND ASSOCIATED FINAL ENVIRONMENTAL IMPACT REPORT CITYWIDE AND INCLUSIVE OF THE THREE IDENTIFIED STUDY AREAS BEYOND THE CITY BOUNDARY

Recitals

1. State law requires the City of St. Helena to adopt and maintain a general plan and contains certain mandatory elements, describes the City's long-term goals and develops policies and programs to achieve those goals; and

2. The City of St. Helena last completed a comprehensive update of its General Plan, which was approved by the City Council in 1993; and

3. The General Plan update formally began in April 2007, with the "Community Visioning and Existing Analysis" process undertaken by the General Plan Update Steering Committee (GPUSC). This effort involved extensive community input leading to the preparation of first full draft of the General Plan in the summer of 2010. Concurrently, environmental analysis was also taking place, leading to the completion of the General Plan Update Draft EIR in August 2010; and

4. The General Plan Update Draft EIR was subsequently circulated for review, comments were received, and a Final EIR (FEIR) was prepared in October 2010. The Planning Commission completed its review and recommended City Council approval of the document in October 2010, and

5. During the City Council review in late 2010, a number of issues surfaced, most notably concerning water supply. Ultimately, the City Council decided to postpone action on the General Plan in order to appropriately address the issue of water supply. A "Safe Yield Committee" was formed and a Water Management Program was developed. The Water Management Program was adopted by Council in November 2012, and thereafter incorporated into the draft General Plan, and

6. The City Council continued with a detailed review of the draft General Plan during numerous hearings held from late 2013 through June of 2014; and

7. Between April and August of 2016, the Planning Commission held six study sessions to review the 2016 draft of the St Helena 2035 General Plan Update (April 19, 2016, May 17, 2016, June 7, 2016, June 21, 2016, and July 19, 2016, and August 2, 2016); and

8. On July 19, 2016, the Commission directed staff to incorporate various changes/edits and further directed that staff present this revised summary to the Commission at the August 2, 2016, Commission meeting, which occurred; and

9. On January 9, 2018, the City Council approved a contract with Dyett and Bhatia to finalize the St Helena 2040 General Plan Update and draft a new EIR for the document. In approving this contract, concerns over finalizing the scope of the General Plan Update and EIR analysis were expressed by the City Council; and

10. On February 20, 2018, the Planning Commission and City Council met at a Joint Meeting to finalize the scope of both the 2040 General Plan Update and the resulting environmental analysis (EIR) required to analyze the project under the California Environmental Quality Act (CEQA). The final scope of the General Plan Update was determined at this meeting, including input on the planned Study Areas located outside of the City boundary and co-terminus Sphere of Influence (SOI); and

11. On April 1, 2018, the City issued a Notice of Preparation (NOP) informing community members, Responsible Agencies and all other parties interested in the City's 2040 General Plan Update that an EIR analysis was going to commence. This NOP requested input from all interested parties regarding the Scope of the EIR analysis, with comments being requested between April 1, 2018 - May 1, 2018; and

12. The City held an EIR Scoping meeting at 6:00 pm on April 17, 2018, in the Vintage Hall Board Room, 265 Main St, St. Helena CA, to allow interested individuals to provide their input and feedback to directly; and

13. On August 14, 2018, the Planning Commission and City Council met at a Joint Meeting to provide final direction and input on the scope of both the 2040 General Plan Update and the resulting environmental analysis (EIR) required to analyze the project under the California Environmental Quality Act (CEQA); and

14. In accordance with Government Code Section 65302, a comprehensive update to the City's General Plan was prepared, which addresses the mandatory elements required by state law, in addition to optional elements for Economic Sustainability; Public Facilities and Services; Historic Resources; Community Design; Climate Change; Parks and Recreation; and Art and Culture; and

15. The 2040 General Plan Update includes goals and policies regarding each of the General Plan elements; and

16. On October 23, 2018, the City of St. Helena published the Public Review draft of the 2040 General Plan update; and

17. On October 23, 2018, the City of St. Helena published draft EIR analyzing the environmental impacts of the draft 2040 General Plan Update for public review and comment, proving a 72-day review comment. This period ended on January 2,

2019, and work began on the draft Final EIR, including the Response to Comments; and

18. Per Government Code 65300, the General Plan and EIR applies to the entire Planning Area identified by the General Plan which includes all of the incorporated City (approximately 3,024 acres) in addition to the three Study Areas (approximately 570 acres) identified therein; and

19. The St. Helena 2040 General Plan Update is a Citywide document that is an integrated and internally consistent statement of the official land use policy for the City of St. Helena; and

20. The City's Housing Element is a mandatory general plan element and was previously prepared for the 2015-2023 planning period and was certified by the California Department of Housing and Community Development (HCD) in 2015 and this document is found to be consistent with the policies and goals of the 2040 General Plan Update; and

21. The City of St. Helena sent the draft 2040 General Plan to affected entities and agencies in compliance with state law (Government Code Sections X) and contacted California Native American tribes that are on the contact list maintained by the Native American Heritage Commission to invite those tribes to consult on the proposed draft 2040 General Plan Update; and

22. On March 8, 2019, a public notice of hearing before the Planning Commission was published in the St. Helena Star/Napa Valley Register; and

23. On March 6, 2019, a mailed notice was sent to all parties who's property or property within the agency's jurisdiction, is affected by the proposed 2040 General Plan Update; and

24. A staff report dated March 19, 2019, and incorporated herein by reference analyzed the projects consistency with all required element of the St. Helena Municipal Code, and

25. On March 19, 2019, the Planning Commission of the City of St. Helena, State of California, considered the project, staff report, and all testimony, written and spoken, at a duly noticed public hearing.

26. Now, therefore let it be found that, the Planning Commission hereby resolves as follows:

Resolution

A. An Environmental Impact Report (EIR) was prepared to analyze and disclose any and all potential environmental impacts associated with the proposed project, meeting and satisfying all the requirements of CEQA and the State CEQA

Guidelines which is sufficiently detailed so that all of the significant environmental effects of the Project have been adequately evaluated; and

B. The findings made in this Resolution are based upon the information and evidence set forth in the Final EIR and upon other substantial evidence that has been presented at the hearings and in the record of the proceedings. The documents, staff reports, technical studies, appendices, plans, specifications, and other materials that constitute the record of the proceedings on which this Resolution is based are on file for public examination during normal business hours at the Planning Division located at City of St. Helena City Hall, 1480 Main St, St. Helena CA; and

C. WHEREAS, the Planning Commission finds that agencies and interested members of the public have been afforded ample notice and opportunity to comment on the EIR and the Project; and

D. WHEREAS, Section 15091 of the State CEQA Guidelines requires that the City, before approving the Project, make one or more of the following written findings for each significant effect identified in the Final EIR accompanied by a brief explanation of the rationale for each finding: (1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the Final EIR; or, (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency; or, (3) Specific economic, legal, social, technological, or other considerations, make infeasible certain mitigation measures or project alternatives identified in the Final EIR; and

E. Section 15093 of the State CEQA Guidelines requires that if the Project will cause significant unavoidable adverse impacts, the City must adopt a Statement of Overriding Considerations prior to approving the project. A Statement of Overriding Considerations states that any significant adverse project effects are acceptable if expected project benefits outweigh unavoidable adverse environmental impacts; and

F. Environmental impacts identified in the Final EIR as significant but which the City finds can be mitigated to a level of less than significant, through the imposition of feasible mitigation measures identified in the Final EIR and set forth herein, are described in Table X of the DEIR, attached hereto as Exhibit A and incorporated herein by this reference; and

G. Environmental impacts identified in the Final EIR as significant but which the City finds cannot be fully mitigated to a level of less than significant, despite the imposition of all feasible mitigation measures identified in the Final EIR and set forth herein, are described in Table X of the DEIR, attached hereto as Exhibit B and incorporated herein by this reference; and

H. Alternatives to the 2040 General Plan Update that might eliminate or reduce significant environmental impacts are described in Section C of the DEIR, incorporated herein by this reference; and

I. A discussion of the project benefits and a Statement of Overriding Considerations for the environmental impacts that cannot be fully mitigated to a less than significant

level are set forth in Exhibit C, attached hereto and incorporated herein by this reference; and

J. Public Resources Code Section 21081 .6 requires the City to prepare and adopt a mitigation monitoring and reporting program for any project for which mitigation measures have been imposed to assure compliance with the adopted mitigation measures. The Mitigation Monitoring and Reporting Program is summarized in Table D of the DEIR, attached hereto as Exhibit Z and incorporated herein by reference; and

K. Prior to making its recommendation to the City Council action, the Planning Commission reviewed, considered and has exercised its independent judgment on the Final EIR and all of the information and data in the administrative record, and all oral and written testimony presented to it during meetings and hearings and finds that the Final EIR is adequate and was prepared in full compliance with CEQA. No comments or any additional information submitted to the City have produced any substantial new information requiring recirculation or additional environmental review of the Project under CEQA.

L. NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends to the City Council certify the Final EIR and adopt the findings, statement of overriding considerations, and mitigation monitoring and reporting program for the St. Helena 2040 General Plan Update.

M. Let it be further resolved that the Planning Commission has considered the findings identified to support the Statement of Overiding Considerations given that the project has been found to demonstrate: Insert specific findings

1.

N. Now therefore be it further resolved that

I HEREBY CERTIFY that the foregoing action to recommend adoption of the St. Helena 2040 General Plan Update and associated Final EIR was duly and regularly approved by the Planning Commission of the City of St. Helena at a regular meeting of said Planning Commission held on March 19, 2019, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

APPROVED:

Lester Hardy

ATTEST:

Noah Housh,

Chair, Planning Commission

Planning and Community Improvement Director

ST. HELENA
General Plan Update 2040

Public Hearing Draft

March 2019

acknowledgements

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Peter White, Vice-Mayor
Paul Dohring
Mary Koberstein
Geoff Ellsworth

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Sarah Parker, former Planning Commission Vice Chairperson
Tracy Sweeny, former Planning Commissioner

Consultant Staff
Victor Carniglia, Municipal Resources Group

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The 2015 - 2023 Housing Element is a separate stand alone document, which consists of:

- Housing Element Update 2015-2023: Goals, Policies, and Eight-Year Action Plan
- Housing Element Update 2015-2023: Housing Needs Assessment

A copy is available on the City's website.

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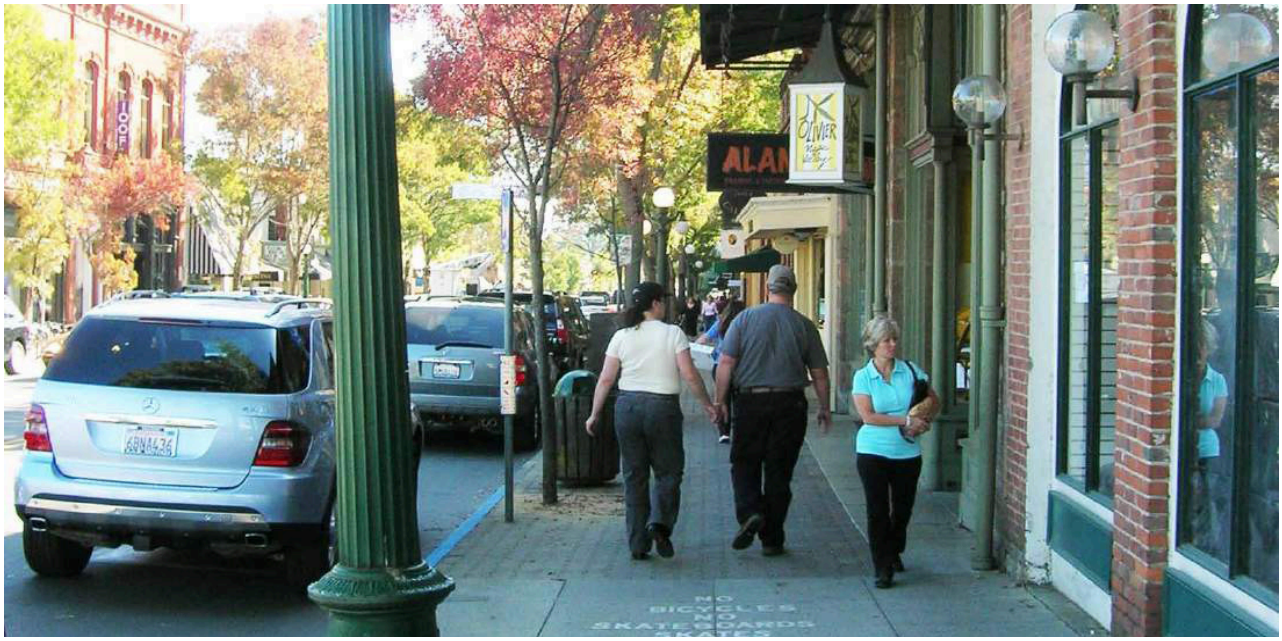
Appendix A: Historic Resources List

chapter one

introduction

1 introduction



Increased mobility, economic resilience, community health and environmental sustainability are all important to the future of St. Helena.

1 **introduction**
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5 circulation
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1.1 Overview

The last comprehensive update of the City of St. Helena's General Plan was completed in 1993, followed by adoption of a new zoning ordinance and map in 1994, to ensure consistency with the General Plan. The defining, unifying goal of all of the elements of the 1993 General Plan was:

"To protect the rural, small town quality and agricultural character of St. Helena. It is the General Plan's intent that the preservation of this small-town character be the unifying philosophy that overlays all other stated goals and policies."

This goal remains a primary focus of the 2040 General Plan update. However, since the adoption of the 1993 Plan, new trends and topics have emerged as important elements of how people approach planning for their communities in the 21st century. Sustainability has become a fundamental principle for all scales of planning and development. The emergence of heritage tourism as an economic development strategy has led to the further integration of local business enhancement and the preservation of valuable cultural, historic, and natural resources. As an increasing focus is placed on how to decrease automobile use and vehicle miles traveled, strengthening pedestrian and bicycle connections has become critical to local mobility and access, and also an integral strategy for addressing climate change.

1 introduction

Additionally, the City of St. Helena has undergone significant changes since the General Plan was last updated in 1993. Napa Valley's growing popularity as a tourist destination, coupled with increasing development pressures resulting from growth throughout the greater San Francisco Bay Area and Sacramento Valley regions, has led to a strengthening of ongoing efforts to protect St. Helena's agricultural lands and small-town character. In addition, improvements to existing public facilities and infrastructure and the creation of new parks have helped to improve quality of life and enhance property values in the city and its surrounding areas.Topics such as local mobility, public health, economic development, and environmental sustainability are also important as residents plan for the future of this beautiful and truly unique town.

The St. Helena General Plan is a powerful policy and implementation tool designed to reflect these changes, respond to the community's vision and desire for its future, and address changes anticipated to take place in the years to come.This introductory chapter to the St. Helena General Plan outlines the context, background, and role of the Plan, including an overview of the document's elements.

1 introduction

Specific sections of the Introduction to the St. Helena General Plan include:

- **1.2 Regional Context**. Provides an overview of St. Helena's role and location in the region (p. 1-5).
- **1.3 Background and Setting**. Describes the City's history and current setting (p. 1-7).
- **1.4 Overall Vision**. Defines St. Helena's vision for the year 2040 (p. 1-12).
- **1.5 Role of the Plan**. Describes how the General Plan is used to set goals, policies, and implementing actions (p. 1-15).
- **1.6 Plan Development Process**. Provides an overview of how the General Plan was developed (p. 1-16).
- **1.7 Overview of the General Plan**. Provides an overview of the 13 elements of the General Plan and how each element is organized (p. 1-21).
- **1.8 Related Planning Documents and Reference Materials**. Lists the related planning documents and reference materials for the General Plan (p. 1-27).

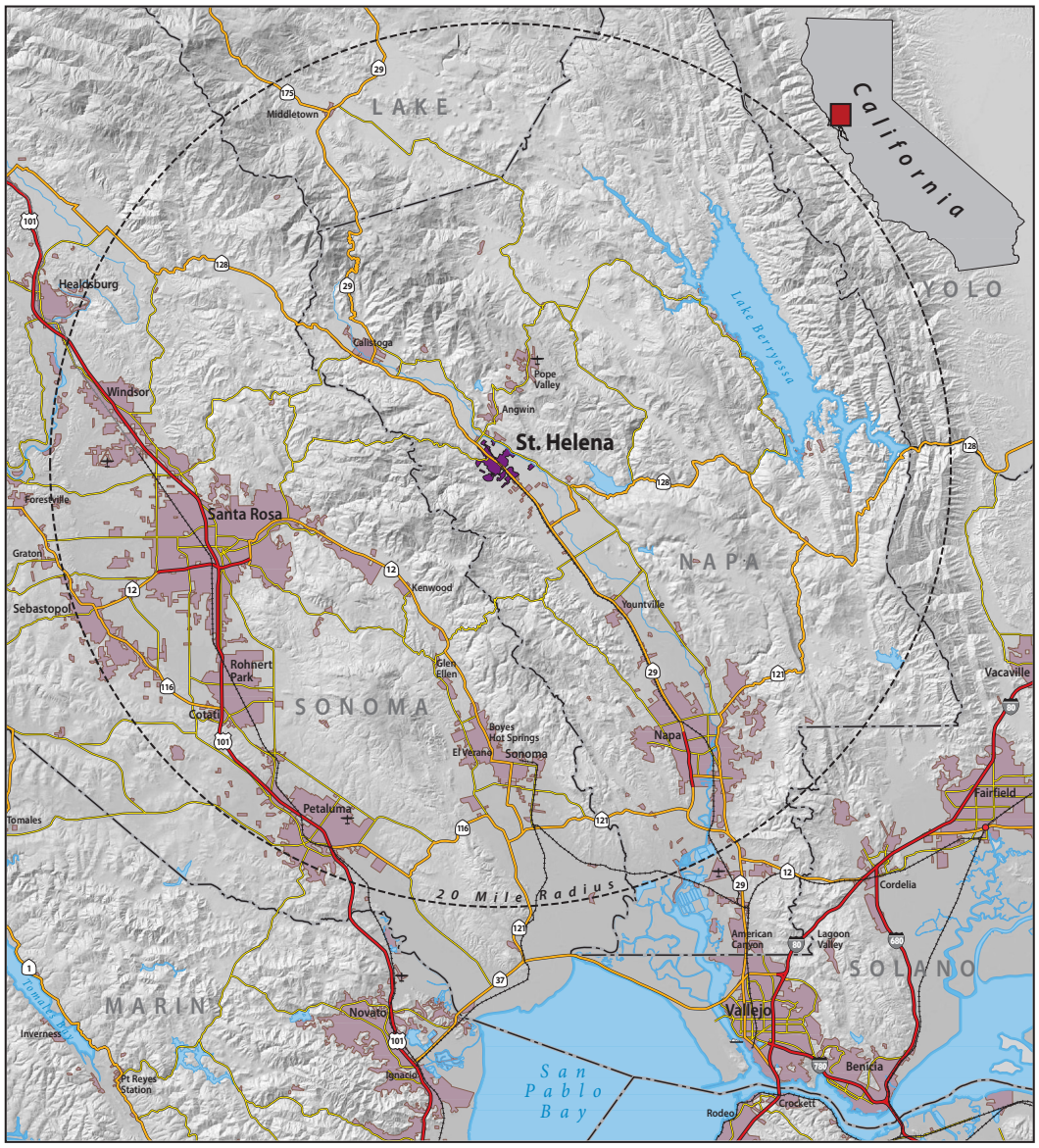
The Napa Valley is known for its diverse soils, microclimates, and success as a center for agriculture and the wine-making industry.

1.2 Regional Context

St. Helena is centrally located in Napa County and sits at the heart of the upper Napa Valley, a region known for its diverse soils, microclimates, and success as a center for agriculture and the wine-making industry. Located approximately 65 miles north of San Francisco and 77 miles west of Sacramento, the city is proximal to Northern California's major urban centers. State Route 29 connects St. Helena to other communities in the Valley, including Calistoga to the north and Yountville, Napa, and American Canyon to the south (see Figure 1.1). The City serves as a commercial and business center for the surrounding towns and unincorporated areas, including Calistoga, Angwin, Deer Park, Rutherford, and the unincorporated area south of St. Helena.

The Coast Range north of the San Francisco and San Pablo bays consists of a series of mountains of moderate relief separated by northwest trending valleys. Nestled between the Mayacamas Mountains to the west and the Howell Mountains to the east, the Napa Valley is one of the major valleys of this region. St. Helena enjoys views of Mount St. Helena, a peak of the Mayacamas located in Robert Louis Stevenson State Park, as well as many other hills and mountainsides.

The Napa Valley rests at the convergence of three California ecoregions: the north coast, the central valley, and the central coast. This unique location supports a diversity of biological resources and a particularly rich heritage of flora and fauna. According to the Land Trust of Napa County, Napa is one of the 25 most biologically diverse counties in the country. The Napa River runs from its origin in the northwest corner of the Valley through the eastern portion of St. Helena. The river begins as fresh water drainage on the southeast slope of Mount St. Helena and flows south to form a tidal estuary downstream of the City of Napa, where it discharges into the San Pablo Bay.



Sources: Metropolitan Transportion Commision, 2001; Green Info Network, 2001; Farmland Mapping and Monitoring Program, California Department of Conservation; Dyett & Bhatia, 2018.

Figure 1.1
Regional Context

1.3 Background and Setting

Human settlement in the Napa Valley dates back thousands of years, when the Yukian people, originally established between the Russian River and Ukiah to the north, spread further south into present day Lake, Mendocino, and Napa counties. The Wappos, Pomos, and Patwins eventually encroached on the Yukian borders, becoming the largest group of Native Americans in the Napa Valley area.

The first Spanish missionaries arrived in the Valley in the 1830s. At the time of European settlement, the Central Wappo had settled permanently around present-day St. Helena. By 1831, between 10,000 and 12,000 Native Americans lived in the area, including approximately 7,000 Wappo. A hundred years later, only a tenth of this population remained.

In 1856, the area experienced its first development boom. The northern extension of the railroad eventually transformed the community into a commercial shipping center for the region. Growth was fueled largely by immigration from China and Europe, particularly Northern Italy and Switzerland, during the last half of the 19th century and the first half of the 20th century. Agriculture and the mining of mercury, or "cinnabar," were key drivers of the economy during this period. Viticulture in St. Helena is known to have begun around 1875. The City was incorporated in 1876.

The town's second period of intense construction took place during the end of the 19th century, with much of this growth concentrated along what is still known today as Main Street. Given its location in the heart of the wine-making region, St. Helena's economy suffered during the Prohibition Era (1920-1933) and grew at a very slow place during subsequent decades. Eventually, wine tourism brought increased attention to St. Helena, resulting in residential and commercial construction and a growth in visitor-serving uses such as hotels, restaurants, and boutique retail establishments.

Many buildings in downtown St. Helena were constructed at the end of the 19th century.

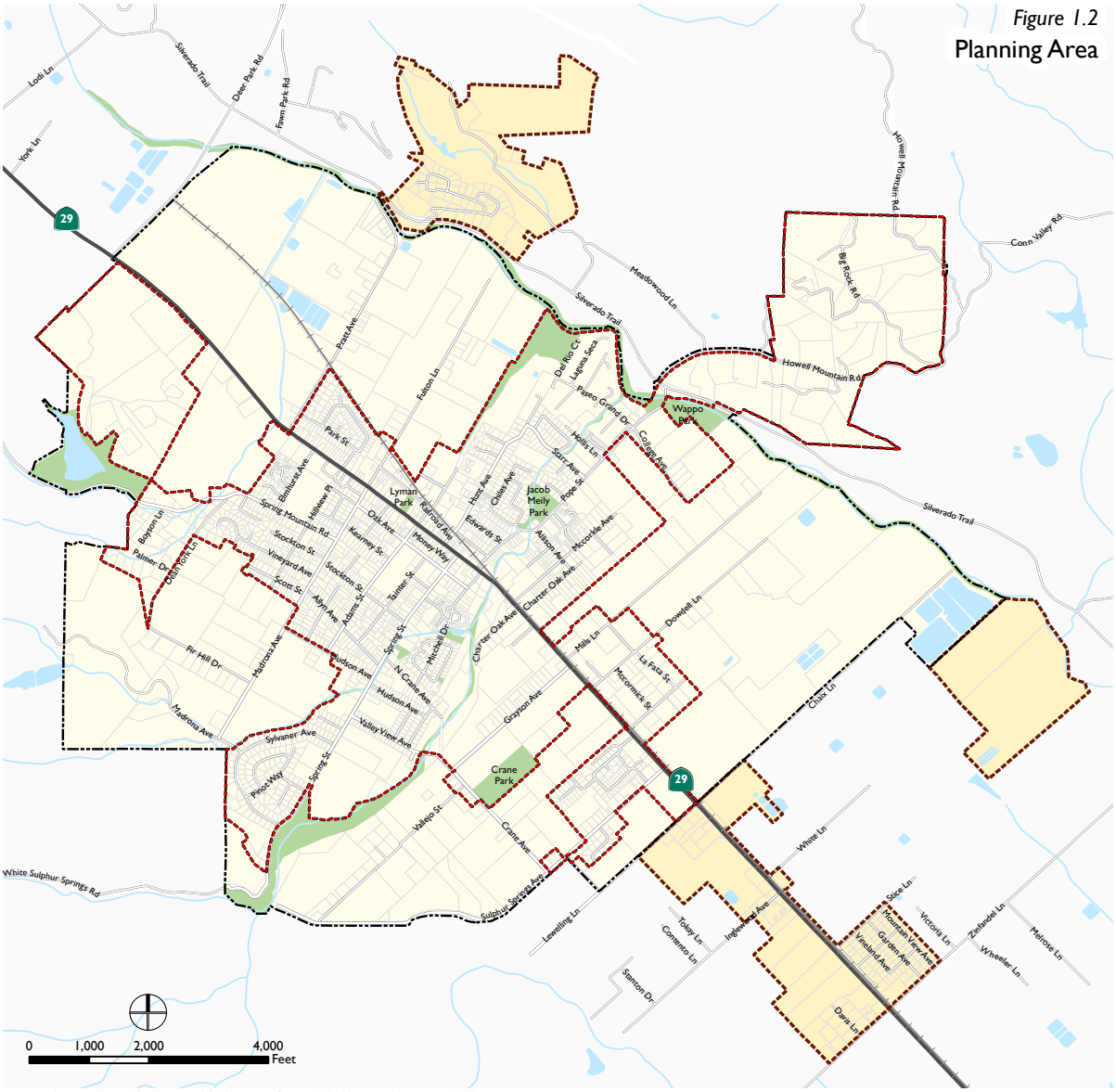
St. Helena's vision includes guiding principles related to a sustainable community, a stable economy and environmental stewardship.

Today, St. Helena is a town of approximately 5,900 residents bisected by State Route 29 (also known as Main Street) and surrounded by agricultural uses. The community stands out in the Valley for its unique, historic character and its ability to attract visitors while also supporting the needs of its resident population. Major economic drivers in St. Helena include agriculture, wine-making, tourism, and education. Several wineries are located within St. Helena, providing jobs and economic benefits associated with tourism. Educational institutions located in the city, such as the Culinary Institute of America and the Napa Valley College Upper Valley Campus, provide jobs and educational opportunities for the area.

1.4 The Planning Area

The State of California encourages cities to look beyond their borders when preparing a General Plan, as issues are not necessarily confined to political boundaries. As shown in Figure 1.2, the Planning Area for the St. Helena General Plan includes the City limit, the Sphere of Influence and three study areas located adjacent to the City limits in unincorporated Napa County. In total, the Planning Area encompasses 3,594 acres of land.

Figure 1.2
Planning Area



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Parks and Open Space
Urban Limit Line
Study Areas
City of St. Helena

1 introduction

Honoring the historic and agricultural character is a key principle for the City's General Plan Vision.

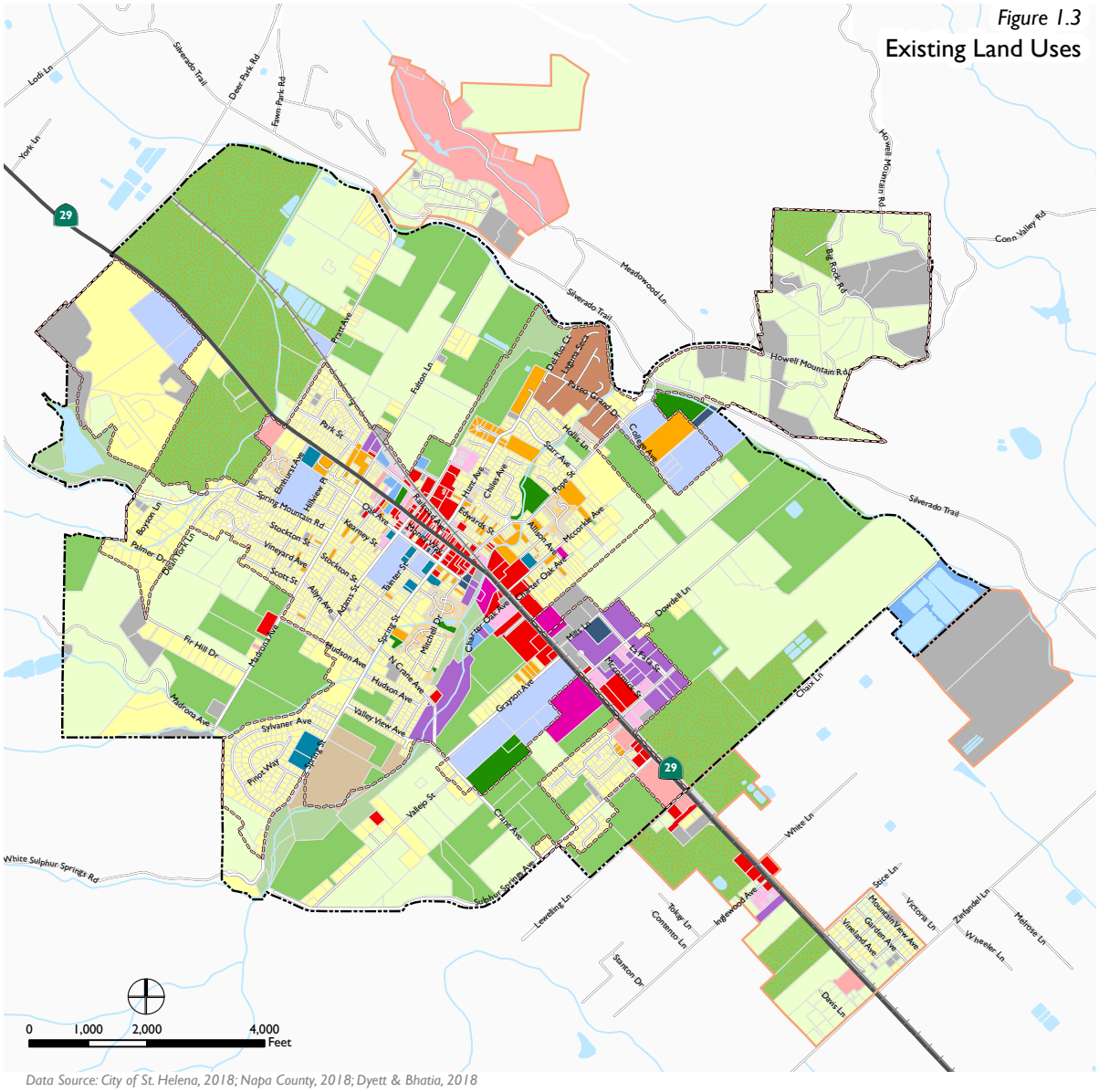
The Sphere of influence (SOI) represents the probable physical boundaries and service area of a local agency, determined by the Napa County Local Agency Formation Commission (LAFCO) with input from the City. LAFCO establishes SOIs throughout the county that promote the orderly expansion of cities and special districts to avoid the premature conversion of agricultural and open-space lands and to ensure effective, efficient and economic provision of essential public services, including public sewer and water, fire protection and emergency response, and police protection. A city's sphere of influence should reflect existing and planned service capacities. LAFCO reviews and updates SOIs as necessary every five years. Additionally, where warranted by special conditions and circumstances, the City may propose a limited change to the established SOI, referred to as an amendment, for consideration by LAFCO. The City may prezone unincorporated territory adjoining the City for the purpose of determining the zoning that will apply to such property in the event of subsequent annexation to the City.

St. Helena's Sphere of Influence and City limits are coterminous, encompassing a land area of 3,024 acres. The development pattern within this area includes an abundance of agricultural lands, business and industrial uses serving agricultural, single and multi-family residential neighborhoods, and a downtown that serves as the commercial center for the city and surrounding communities. Existing land use (2018), as provided by the County Assessor's parcel data, is provided in Figure 1.3. The existing land uses largely correspond to the existing and proposed General Plan land use designations, which reflects the fact that St. Helena is a largely built-out city.

Although St. Helena does not have jurisdiction in areas outside of its City limits, the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities, to the three adjacent study areas. As such, what happens in those areas bears a relation to the City's planning and must be considered in the General Plan, per California Government Code Section 65300.

Figure 1.3

Existing Land Uses



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

The principle of environmental stewardship includes conservation, wastewater treatment, green building and emissions reductions, among other considerations.

The three study areas include:

- Study Area 1. This 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and City-owned utility infrastructure, including water tanks. The City provides water service to Meadowood and some of the residential development in the area.
- Study Area 2. Located south of Chaix Lane immediately adjacent to the southeastern City limit, this area of approximately 100 acres comprises the spray fields currently used to dispose of treated effluent from the City's Wastewater Treatment Plant.
- Study Area 3. Comprising parcels with existing commercial and residential development fronting State Route 29, this 185-acre area extends south from Chalk Lane to Zinfandel Lane. The City currently provides water utility service to many properties in this area, with the remaining structures relying on wells and individual septic systems of various ages and capacities.

The intent of including the three study areas within the Planning Area of the General Plan update is to document sensitive environmental resources and regulatory or capacity constraints associated with those areas in the General Plan Environmental Impact Report (EIR) in order to inform decision-makers and community members about associated issues and opportunities. The three study areas are shown in maps included in the Plan for informational purposes.

1.5 Overall Vision

With an eye toward the future, while building on the assets of today, the community of St. Helena envisions that, in the year 2040, the town will be a well-integrated place linked by effective community institutions, safe neighborhoods and streets, and superior schools, parks, and public facilities. In addition, planning for thoughtful, well-managed development, while maintaining its small-town, rural character is of vital importance to St. Helena's residents.

St. Helena's broader vision is based on a common understanding of what it means to live and grow as a sustainable community, making decisions that allow the community to meet the social and economic needs of today, while allowing future generations to meet their own needs.

The following points support the vision and provide guiding principles for St. Helena in 2040, as described previously in this chapter, for fostering a physically, socially, economically, and environmentally sustainable community.

Creating a sustainable community and stable economy requires meeting basic needs and providing opportunities for current and future residents.

1 introduction

The Plan Development process included several community workshops and other public participation and outreach opportunities.

OUR SUSTAINABLE COMMUNITY

St. Helena will preserve its history while managing change. Its traditions of diversity, citizen involvement, and responsive government will help the City plan for a sustainable future.

- More people who work in town will be able to afford to live in St. Helena in a wide range of innovative, well-designed housing, available for residents of all ages and income levels.
- St. Helena's historic and agricultural character will be honored and protected.
- Expanded arts and cultural activities will continue to enrich community life.
- High-quality schools and education for all ages will continue to be a focus of the community.
- St. Helena's character will be strengthened through innovative design that maintains the scale and character of its existing neighborhoods.
- Public spaces and civic facilities will be available for community gatherings, meeting the social and recreational needs of all ages and interests.

OUR STABLE ECONOMY

St. Helena's economy will meet the basic needs of residents, while balancing the benefits and impacts of visitors and provide better economic opportunities.

- Central St. Helena will remain the social, cultural, and economic heart of town.
- More of residents' daily needs will be met in the city by local businesses.
- Vehicular, bicycle, and pedestrian circulation improvements will provide transportation choices, reduce automobile traffic, and improve the quality of life in St. Helena.
- A combination of better regional connections and alternative modes of travel will improve circulation and traffic conditions, reducing congestion on Main Street.

Phase I of the General Plan process included an existing conditions analysis.

OUR ENVIRONMENTAL STEWARDSHIP

Environmental conservation, green choices, and greenhouse gas emissions reductions will be integrated into all areas of community decision making.

- Through a combination of conservation and infrastructure improvements, water and wastewater treatment will meet the community's needs.
- Green buildings and infrastructure and renewable energy installations will reduce energy consumption and improve energy efficiency.
- The riparian corridors of the Napa River, Sulphur Creek, and York Creek will be restored as critical assets.
- Additional and improved parks, protected hillsides, agriculture, trees, locally-grown food, and community gardens will contribute to St. Helena's sustainable community.

1.6 Role of the Plan

The St. Helena General Plan is the primary policy document for the City of St. Helena as it moves toward the year 2040. It sets forth the City's policies to guide future land use decisions and provides the needed framework to preserve the character and quality of development that the community desires. The General Plan also helps to establish the processes by which the City's evolution and changes to existing land uses will take place. The State of California requires that every city and county adopt a general plan to guide decisions related to the conservation of natural resources, the physical form and character of future development, and public welfare and safety. Local ordinances and other plans must be consistent with general plan policies. The St. Helena General Plan establishes the basis for St. Helena's Zoning Ordinance, which serves as the legal regulatory code for land use and development within the City's jurisdiction. An EIR outlining the impacts and associated mitigations of proposed land use, circulation, and other changes is required by State law to accompany the General Plan and be certified concurrently.

The General Plan is used in many ways. City planning staff refers to the General Plan when reviewing development proposals, to ensure that projects align with the community's vision. Where public decisions impact the physical environment, the Planning Commission and City Council use the document to guide decision-making. Importantly, the General Plan empowers the City, public agencies that work with the City, and private developers to invest in and design for a future that will enhance the character of the community and sustain and improve the quality of life, in accordance with the values and goals defined in the Plan.

The goals, policies, and implementing actions set forth in this General Plan create no mandatory duty on the City's part, except as may be explicitly required in the future by the State of California as a condition of approval of any mandatory element of the General Plan in order to satisfy State law. Rather, the goals, policies, and actions provide the foundation for the design and application of current and future policy tools, such as the City's Urban Limit Line,

design guidelines and form-based codes, and specific ordinances to protect St. Helena's wealth of resources. The City Council and staff will ultimately decide whether, as well as when and how, to carry out any goal, policy, or implementing action.

1.7 Plan Development Process

The St. Helena General Plan was developed in four stages:

- Phase I: Community Visioning and Existing Conditions Analysis;
- Phase II: Policy and Physical Framework Development;
- Phase III: General Plan Development; and
- Phase IV: General Plan Completion, subsequent update of documents, and Adoption.

The City Council and Planning Commission provided overall direction, with the assistance of the General Plan Update Steering Committee (GPUSC), and a multidisciplinary consultant team. The GPUSC, composed of St. Helena residents and elected and appointed officials, played an important advisory role throughout the Plan development process, and met regularly to review materials, share ideas and provide feedback.

Phase I. Community Visioning and Existing Conditions Analysis

Phase I of the Plan development began in April 2007 and continued through February 2008. During this phase the GPUSC, supported by City staff and the consultant team, conducted a thorough analysis of existing conditions in St. Helena. These efforts resulted in a series of working papers that collectively provided a comprehensive analysis of existing conditions and key policy issues. Topics included the community vision, community character, circulation, economics, infrastructure, climate change, the natural environment, sustainability, and the regional context. These papers established a starting point for community and City discussion of key issues and opportunities. They also contributed to the body of analysis that served as the technical basis for development of the General Plan.

The Community visioning process, also led by the GPUSC, involved community residents, business owners, and agency and organization representatives. Community engagement activities included a telephone survey, a series of workshops, and an open house and public forum. Each of these tools was dedicated to exploring the major issues and opportunities faced by St. Helena, and the desires of the community moving forward. This process resulted in a clear articulation of the community's desire to build a sustainable future, reflected in its overall vision presented above.

Phase II. Policy and Physical Framework Development

Phase II of the General Plan Update process was initiated in October 2008. During this phase, the City, the GPUSC, and the community worked actively to develop the General Plan goals, policies, and implementing actions. The City launched its General Plan Update website and began publication of regular e-newsletters to keep community members informed of the process. The GPUSC met regularly during this stage and hosted a "land use and design charrette" aimed at exploring key land use issues and opportunities.

The City and General Plan consultants worked closely during this phase to refine existing land use maps, review background policy and technical documents, and analyze the existing General Plan Physical Framework and Land Use Element. The outcomes of this effort included identification of potential land use change areas in the city and identification of the likely impacts of these changes.

Two separate but parallel processes began during Phase II: development of the 2009-2014 General Plan Housing Element and the Adams Street Property Visioning Project. The 2009-2014 Housing Element update process was led by a separate subcommittee, working under a shorter timeline than the process for updating the rest of the General Plan. The 2009-2014 Housing Element for St. Helena was completed in June 2009 and certified as complete by the Department of Housing and Community Development on October 15, 2009. The Adams Street Property Visioning Project began in October 2008 and was completed in March 2009. The Adams Street Plan outlined the community vision for Adams Street and included an accompanying site plan and graphics.

Phase III. General Plan Development

In April 2009, the City began the process to develop the draft General Plan document. A series of eight GPUSC meetings was held to review drafts of the General Plan Elements. Two community workshops were held in fall 2009 to discuss community design and circulation. Additional community meetings were held in early 2010 to review the public draft Plan.

Phase IV. General Plan Completion and Adoption

Beginning in the summer of 2010 the fourth phase of plan development focused on preparing a Draft General Plan for review by the Planning Commission and the City Council. Following joint consideration with the City Council, the Planning Commission reviewed the General Plan, and recommended its approval to the City Council in October of 2010. The City Council considered the Planning Commission recommendations on October 26, 2010 and at a continued City Council meeting on November 9, 2010. At the November meeting, issues were raised primarily relating to water supply. After approving a number of changes, the City Council made a decision to recirculate the EIR. This led to a complete re-examination of the City's water supply and the establishment of the Safe Yield Committee.

The water evaluation also prompted the creation of a Water Management Program that the City Council adopted on November 13, 2012. Staff and the General Plan EIR consultant concluded that implementation of the Water Management Program would effectively mitigate potential impacts of growth from the Plan on the water supply. The City Council subsequently renewed its review of the General Plan.

As part of this renewed review process, the City Council held a number of publicly-noticed General Plan Workshops. These Workshops were held between the Fall of 2012 and the Summer of 2014. As part of this Workshop process, the City Council made a number of revisions to the text of the General Plan. By June 2014 this thorough, element by element, review of the General Plan by the City Council was complete. As required by State law, the Planning Commission in September 2014 began its review of the various changes made to the General Plan by City Council as part of the Council 2012 to 2014 Workshop process. The Commission completed this review of the Council General Plan changes in December 2014. A concluding General Plan workshop was held by the City Council on September 8, 2015 prior to resuming formal public hearings on the General Plan and associated General Plan EIR. During the 2014 to 2015 General Plan Workshop process, the City completed its

required 2015 to 2023 update of the City Housing Element. After a number of hearings at the Planning Commission and City Council level, the City Council approved the Housing Element Update in May 2015. The Housing Element received State HCD approval in late May 2015. It is important to note that the recently approved 2015-2023 Housing Element is not being changed or modified as part of this 2016 General Plan update process.

Between April and August of 2016, the Planning Commission held six study sessions to review the 2016 draft of the General Plan Update. At the July 19, 2016, a compilation of the comments and direction concerning the General Plan taken from the preceding Commission Study Sessions was discussed at-length.

Following incorporation of the Planning Commission's refinements to the 2010 draft described above, the General Plan Update was substantially complete, although some additional changes were necessary to ensure consistency and compliance with State law. In January 2018, the City began the effort to make these additional refinements and finalize the General Plan Update. Additional modifications include:

- An updated horizon year of 2040;
- Additional policies and actions to incorporate climate adaptation and resiliency strategies, including measures address wildfire hazards, flooding and infrastructure in at-risk areas, pursuant to Senate Bill 379 and other applicable laws.
- Additional policies and actions to address relevant environmental justice issues, based on an analysis of data from the California Communities Environmental Health Screening Tool, pursuant to Senate Bill 1000 and other applicable laws.
- Updates to data, maps and text to ensure the use of the latest, publicly available information.

The City Council and Planning Commission held joint study sessions on February 20 and August 14, 2018 to review and discuss these further targeted updates to the 2010 draft.

1.8 Overview of the General Plan

The St. Helena General Plan consists of 13 chapters: 12 elements and the Introduction. It should be noted that since the Housing Element is updated on a separate eight-year cycle, and was last updated in 2015, it is not included within this General Plan update, though it is referenced as Chapter 11 within the Plan. Each of the elements contained within the General Plan is critical to establishing the policy direction necessary to achieve the community's vision of sustainability in land use and related activities over the next 20 years. State statutes require that local general plans include the following seven elements, at a minimum: Land Use, Housing, Circulation, Open Space, Noise, Safety, and Conservation. California general plan guidelines encourage jurisdictions to reorganize or combine elements as appropriate to improve clarity and eliminate redundancy in the document. In addition, jurisdictions may incorporate additional elements as needed to achieve the community's vision and overarching goals. In order to respond to the community's special needs and desires, the St. Helena General Plan reorganizes some required plan components and incorporates several optional elements.

As stated in Section 1.6 of the General Plan, except as may be set forth in the Housing Element, the goals, policies, and implementing actions set forth in the General Plan create no mandatory duty on the City's part.

Table 1.1 lists all elements of the St. Helena General Plan and illustrates which elements are required by State law and which are optional. As previously noted, the Housing Element, while part of the General Plan, is published as a "stand alone" element, and is not physically incorporated into this General Plan document.

TABLE 1.1. Elements of the St. Helena General Plan

General Plan Element	Required	Optional
Land Use and Growth Management	●	
Economic Sustainability		●
Public Facilities and Services		●
Circulation	●	
Historic Resources		●
Community Design		●
Open Space and Conservation	●	
Public Health, Safety and Noise	●	
Climate Change		●
Housing	●	
Parks and Recreation		●
Arts and Culture		●

ELEMENT ORGANIZATION

Each element of the St. Helena General Plan begins with a brief introduction and background on the specific subject matter. Graphs, tables, and maps are used to highlight key information and plan direction. In addition, each element contains a "Concepts, Trends and Ideas" sections describing recent innovations and concepts relevant to planning the future of St. Helena.

At the heart of each element of the St. Helena General Plan is a series of goals, policies, and implementing actions. Goals are statements that describe the broad, long-term aspirations of the City and community. Each goal in the Plan consists of a brief directive, which is followed by a narrative that provides further description of the preferred direction that the goal establishes. Policies provide the needed specificity or guidance for the City as it makes decisions. Policy statements encourage certain actions and lay the foundation for the City to establish regulations, programs, and incentives, where needed, to achieve each goal. Implementing actions identify the specific steps required to implement policies and advance the goals.

OVERVIEW OF THE GENERAL PLAN ELEMENTS

Chapter Two: Land Use and Growth Management

The Land Use and Growth Management Element presents a framework for governing future decisions about allowable, context-appropriate land use and desired development patterns. The framework aims to manage growth effectively while encouraging the use of innovative approaches, quality design, and infill strategies as the community evolves. Policies and actions in this Element draw from and build upon St. Helena's distinct history and character, walkable and strong neighborhoods, and active downtown.

Chapter Three: Economic Sustainability

The Economic Sustainability Element is included in the General Plan in recognition of the important role that economic sustainability plays towards achieving St. Helena's overall community vision of "meeting present needs without com-

promising the ability of future generations to meet their needs." The guiding principles established in this Element provide the policy direction needed to develop a sustainable economy that is responsive to short-term and longer-term community concerns and objectives.

Chapter Four: Public Facilities and Services

The Public Facilities and Services Element sets forth policy guidance for the City's provision of services, amenities, and infrastructure. This includes community service facilities, public utilities, and the required physical infrastructure for service and utility delivery. Policies related to public facilities and services follow from the key topics identified in this Element including: water, wastewater, storm drainage and flooding, solid waste, schools, libraries, fire, and police.

Chapter Five: Circulation

The Circulation Element establishes the policies needed to foster a comprehensive and multimodal transportation network that is well integrated with the City's land use and growth management goals, policies, and actions. The Element identifies the principal components of the circulation system, as well as issues relating to parking, transit, and pedestrian and bicycle routes. Standards and guiding principles for the implementation of transportation facilities and infrastructure are also included.

Chapter Six: Historic Resources

The Historic Resources Element presents a framework for governing future decisions about protecting, rehabilitating, retrofitting, and adaptively reusing the City's historic buildings. The intent of this Element is to establish the policies required to manage St. Helena's historic assets in order to maintain the City's sense of place and ensure that these assets can be enjoyed by current and future residents and visitors.

Chapter Seven: Community Design

The Community Design Element presents a framework of policies and implementing actions that correspond directly with other General Plan elements in determining the form, quality, and character of St. Helena's built environment. By respecting established neighborhoods and historic assets, this Element provides guidance to build upon St. Helena's distinct history, while promoting new approaches to enhance future public and private development.

Chapter Eight: Open Space and Conservation

The Open Space and Conservation Element guides future decisions about how St. Helena will sustain a healthy network of open spaces and protect natural resources for today's residents, as well as future generations. Element goals, policies, and implementing actions are designed to protect, maintain, and enhance St. Helena's biological, ecological, and agricultural resources, while balancing current community resource needs with conservation endeavors to benefit the common good.

Chapter Nine: Public Health, Safety and Noise

The Public Health, Safety, and Noise Element presents a framework for minimizing risks posed by environmental and human-caused hazards that may impact St. Helena's health and welfare. This Element aims to ensure that St. Helena's residents, workers, and visitors are protected from negative exposure to flooding, fires, hazardous materials, air pollution, and geologic and seismic hazards.

Chapter Ten: Climate Change

The Climate Change Element is the City's policy framework for responding to and planning for climate change. Goals, policies, and implementing actions presented in this Element address energy conservation, renewable energy production, and transportation. The policies and actions included in this Element align with the Napa Countywide Community Climate Action Framework and chart

a course for responsible growth and sustainable business development that meets St. Helena's specific needs.

Chapter Eleven: Housing

The Housing Element, which was adopted by the City and certified by the State in May 2015, establishes a comprehensive plan to address housing needs in St. Helena over the eight-year planning period between July 1, 2015 and June 30, 2023. This Element sets the community goals and policies surrounding the development, rehabilitation, and preservation of housing units to meet the needs of St. Helena's current and future residents. Every jurisdiction in the State of California is required to submit a Housing Element to the State HCD for review and certification. The adopted 2015 to 2023 Housing Element is not being modified as part of this General Plan update process. As previously noted, the Housing Element document is not physically included within this updated General Plan. The Housing Element is referenced in the General Plan as Chapter 11.

Chapter Twelve: Parks and Recreation

The Parks and Recreation Element presents a framework for developing and maintaining a comprehensive system of quality parks, pedestrian and bicycle trails, recreational facilities, and programs. It aims to ensure that management of parks and recreational programming supports community members' health, entertainment, and high quality of life. Key to these efforts is creating and maintaining a network of bicycle and pedestrian trails that establishes connections between residential neighborhoods, parks, schools, and goods and services.

Chapter Thirteen: Arts, Culture and Entertainment

The Arts, Culture, and Entertainment Element aims to preserve and protect St. Helena's unique identity, heritage, and cultural resources; celebrate its vibrant community; and expand opportunities for arts enrichment. By providing policy support for City leadership, active community participation, and strategic partnerships, this Element seeks to integrate arts, culture, and entertainment into the community's everyday life.

1.9 Related Planning Documents and Reference Materials

The following documents are included in an appendix to the General Plan.

- Historic Resources List

A copy of the General Plan Appendix is available separately on the City's Web site, and a hard copy of the Appendix is available at City Hall. A copy of the General Plan Program EIR is also available on the City's website.

CONCEPTS, TRENDS AND IDEAS

Community Engagement and Plan Development

General Plan Update Steering Committee

The General Plan Update Steering Committee (GPUSC) played an invaluable role in ensuring that the updated General Plan reflects the community's desires and is responsive to the needs of its residents. Composed of City residents and appointed and elected officials, and supported by key City staff, the GPUSC began meeting in March 2007 to inform the update of the General Plan. Regular GPUSC meetings took place almost monthly throughout the Plan development process through 2010.

Community Workshops

The City hosted a number of community workshops to provide the opportunity for community members to share ideas, voice concerns, and give feedback on Plan goals, policies, and objectives. The vision statement, which serves as the foundation for the General Plan was developed by the community during Phase I of the update process.

Workshops in 2009 and 2010 focused on the development of land use, community design, and transportation concepts for the Plan and review of draft Plan components. Additional General Plan workshops, held in 2014 and 2015, focused on changes to the General Plan since the first full draft of the General Plan was completed in 2010.

The community has been involved throughout the plan development process through community workshops, telephone interviews, and online engagment.

Telephone Survey

Between June 25 and July 6, 2007, General Plan consultants conducted telephone interviews with 330 heads of households in St. Helena. Households were contacted via random-digit-dialing based upon St. Helena's zip code, and potential respondents were screened to ensure that they were full-time residents of the City. The primary concern noted by respondents was to ensure that the City of St. Helena continues to support and address the needs of its residents. In addition, most respondents noted that they would also like St. Helena to maintain its small-town, rural character.

General Plan Website

The St. Helena General Plan website established an important online presence for the General Plan Update, serving as the portal for community and General Plan Update team members to access project-related information and materials. Individuals frequently used the online comment feature to submit their ideas, questions, and concerns to the project team. While the City no longer maintains a website devoted solely to the General Plan Update process, a copy of the General Plan is available on the City's main website.

chapter two

land use and growth management

2 land use and growth management

The Land Use and Growth Management Element provides an outline for governing future land use decisions and development patterns.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

2.1 Purpose of the Element

The Land Use and Growth Management Element presents a framework for governing future decisions about allowable, context-appropriate land use and desirable development patterns to maintain the small-town character of St. Helena. This framework aims to effectively manage growth by drawing from and building upon the community's distinct history, walkable and strong neighborhoods, and active downtown. The Land Use and Growth Management Element sets the stage for maintaining an economically, socially, and environmentally sustainable St. Helena.

The Land Use and Growth Management Element includes the following sections.

- **2.2 Community Development Framework**. Describes the framework for community development, including the growth management system and land use designations (p. 2-3).
- **2.3 Key Findings.** Identifies key findings based on an existing conditions analysis and extensive community outreach (p. 2-26).
- **2.4 Goals**. Defines overarching goals to guide policies and implementing actions (p. 2-28).

- **2.5 Policies and Implementing Actions**. Identifies policies and implementing actions to manage growth and maintain community character (p. 2-29).

2.2 Community Development Framework

Famous for its scenic Napa Valley location, fine wineries, and historic Main Street, St. Helena seeks to protect its small-town, agricultural character through a coordinated approach to growth management and land use planning. The City has developed an Urban Limit Line to control and limit development in order to ensure that prized agricultural and open space lands remain for future generations. In addition, it has crafted a land use designation system that works in tandem with its growth management goals, while allowing for targeted development in key areas and maintaining the character of its existing neighborhoods and central commercial areas. Following are detailed descriptions of the City's land use designations, growth management system, and development capacity.

The increasing pressures to grow caused serious concern in the community during the 1970s and resulted in the creation of a Growth Management System in the late 1970s. Public workshops and a phone survey conducted for the 1993 General Plan Update indicated that the principal land use concern was the rate of growth in the city. The community was generally concerned that there would be a loss of charm and beauty, increased traffic conditions, and an inadequate water supply. For the 2040 General Plan Update, a phone survey, Town Hall meetings, and mail-in survey were conducted and found that the same issues still resonate in the community and addressing concerns regarding traffic congestion, inadequate water supply, and preservation of small-town character remain priorities in St. Helena. Therefore, the City should follow the long-standing philosophy that growth in St. Helena needs to be carefully managed to ensure that each of these decades-long public concerns are adequately addressed in future land use determinations.

2 land use and growth management

St. Helena seeks to protect its small-town, agricultural character through a coordinated approach to growth management and land use planning.

LAND USE DESIGNATIONS

Land in St. Helena is classified according to four broad land use categories:

- Residential Areas;
- Commercial and Mixed-use Areas;
- Business and Industrial Areas; and
- Community and Natural Resource Areas.

Within each of these categories, specific land use designations identify uses and the density and intensity of development allowed in each designation. Table 2.1 and Figure 2.1 outline the City's land use designations. For quick comparison and reference, Figure 2.2 includes a menu of St. Helena's land use designations, permitted building intensities and densities, and examples of potential building types for each land use designation.

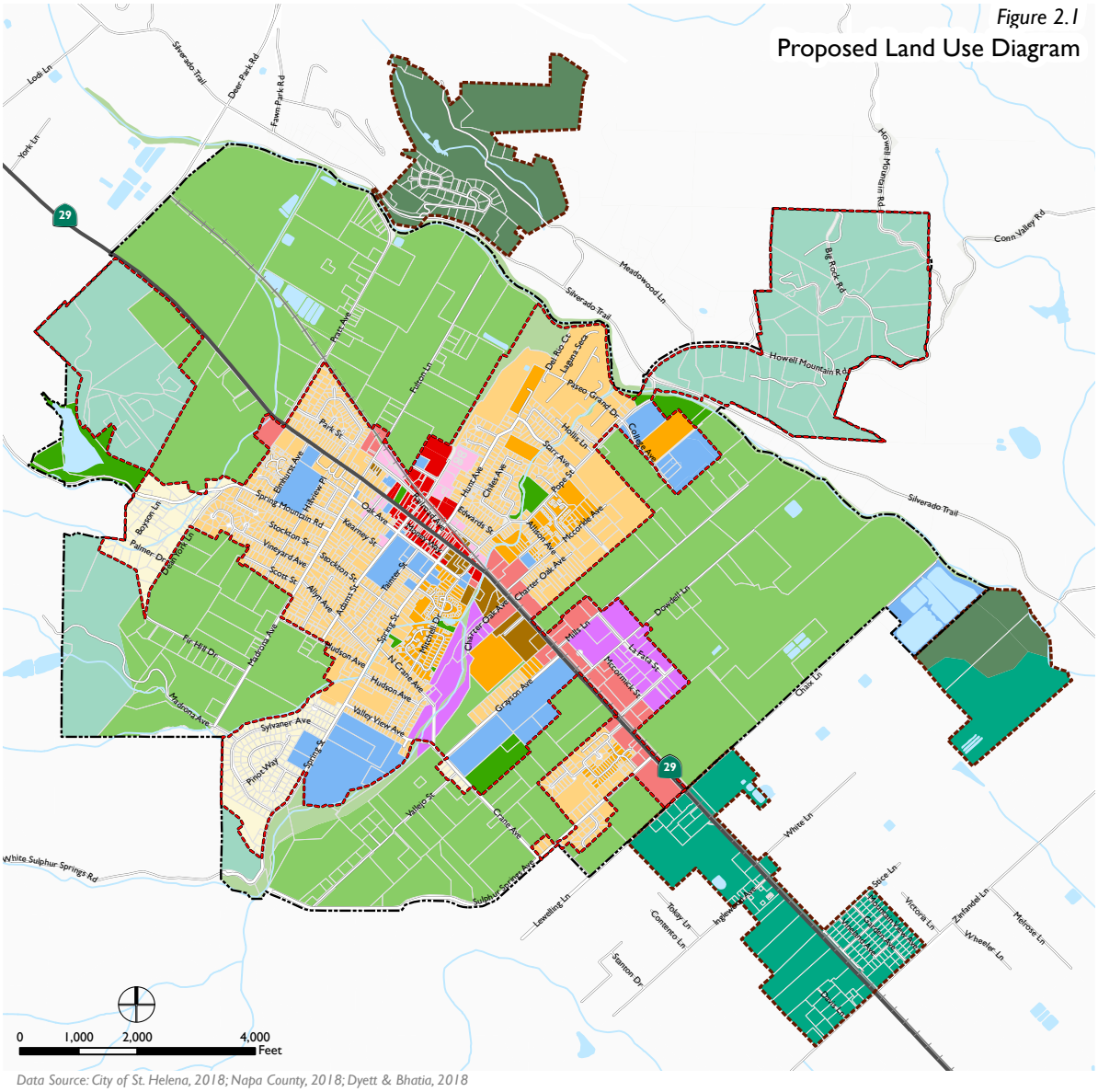
TABLE 2.1: General Plan Land Use Acreage

Land Use Designation	Acres	Percent of Total
Residential		
Low Density Residential	97	3%
Medium Density Residential	409	13%
High Density Residential	83	3%
Subtotal	**589**	**19%**
Commercial and Mixed-Use		
Mixed-Use	19	1%
Central Business	28	1%
Service Commercial	61	2%
Subtotal	**108**	**4%**
Business and Industrial		
Office	15	0.5%
Industrial	60	2%
Subtotal	**75**	**2.5%**
Community and Natural Resource		
Open Space	72	2%
Park	57	2%
Public and Quasi-Public	156	5%
Woodlands and Watershed	451	14%
Agriculture	1,451	46%
Subtotal	**2,187**	**69%**
Total	**3,148**	**100%**

Note: Acreage totals do not include public roadways.

Figure 2.1

Proposed Land Use Diagram



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

St. Helena General Plan

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Service Commercial
- Mixed-Use
- Office
- Industrial
- Public and Quasi-Public
- Parks and Recreation
- Agriculture
- Open Space
- Woodlands and Watershed

Napa County General Plan

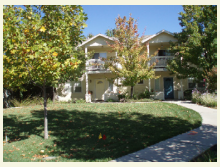
- Agricultural Resource
- Agriculture, Watershed and Open Space

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

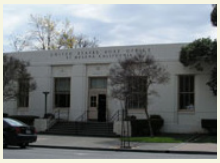
GENERAL PLAN UPDATE
City of St. Helena

DYETT & BHATIA
Urban and Regional Planners

FIGURE 2.2: General Plan Land Use Menu

Land Use Category	Density/ Intensity	Examples
Low Density Residential (LDR): Single-family detached homes, secondary residential units and limited agricultural uses.	1.0 to 5.0 dwelling units per acre	
Medium Density Residential (MDR): Single-family detached and attached homes, and secondary residential units.	5.1 to 16.0 dwelling units per acre	
Higher Density Residential (HDR): Single-family and multi-family housing, including apartments, townhouses and group homes.	16.1 to 28.0 dwelling units per acre	
Mixed-Use (MU): Medium density residential mixed with retail, office, restaurant or other local-serving uses.	Up to 20 dwelling units per acre	
Central Business (CB): Retail and commercial businesses that serve residents and visitors, including restaurants, lodging, retail, office, etc.	Maximum FAR 2.0	
Service Commercial (SC): Retail and service uses that are local-serving and may be auto-oriented, including offices, restaurants, service stations, etc.	Maximum FAR 0.50	

Notes: Dwelling units per acre (du/ac) describes residential building density. Floor area ratio (FAR) denotes building intensity for non-residential uses.

Land Use Category	Density/ Intensity	Examples
Business and Professional Office (BPO): Administration and professional office uses, including medical, financial, etc.	Maximum FAR 0.50	
Industrial (I): Industrial parks, warehouses, light manufacturing, auto and farm-related uses.	Maximum FAR 0.50	
Woodland and Watershed (WW): Very low density residential that ensures protection of wildlife, vegetation, open space and watershed resources.	Minimum parcel size 5 acres	
Agriculture (AG): Agricultural and winery uses with restricted single-family residential.	Minimum parcel size 5 to 40 acres	
Public/Quasi-Public (PQP): Government-owned facilities, schools, churches, cemeteries, etc.	Maximum FAR 0.50	
Parks and Recreation (PR): Parks with public recreation uses.	N/A	
Open Space (OS): Natural open spaces devoted to natural resource preservation and management, outdoor recreation, public health and safety.	N/A	

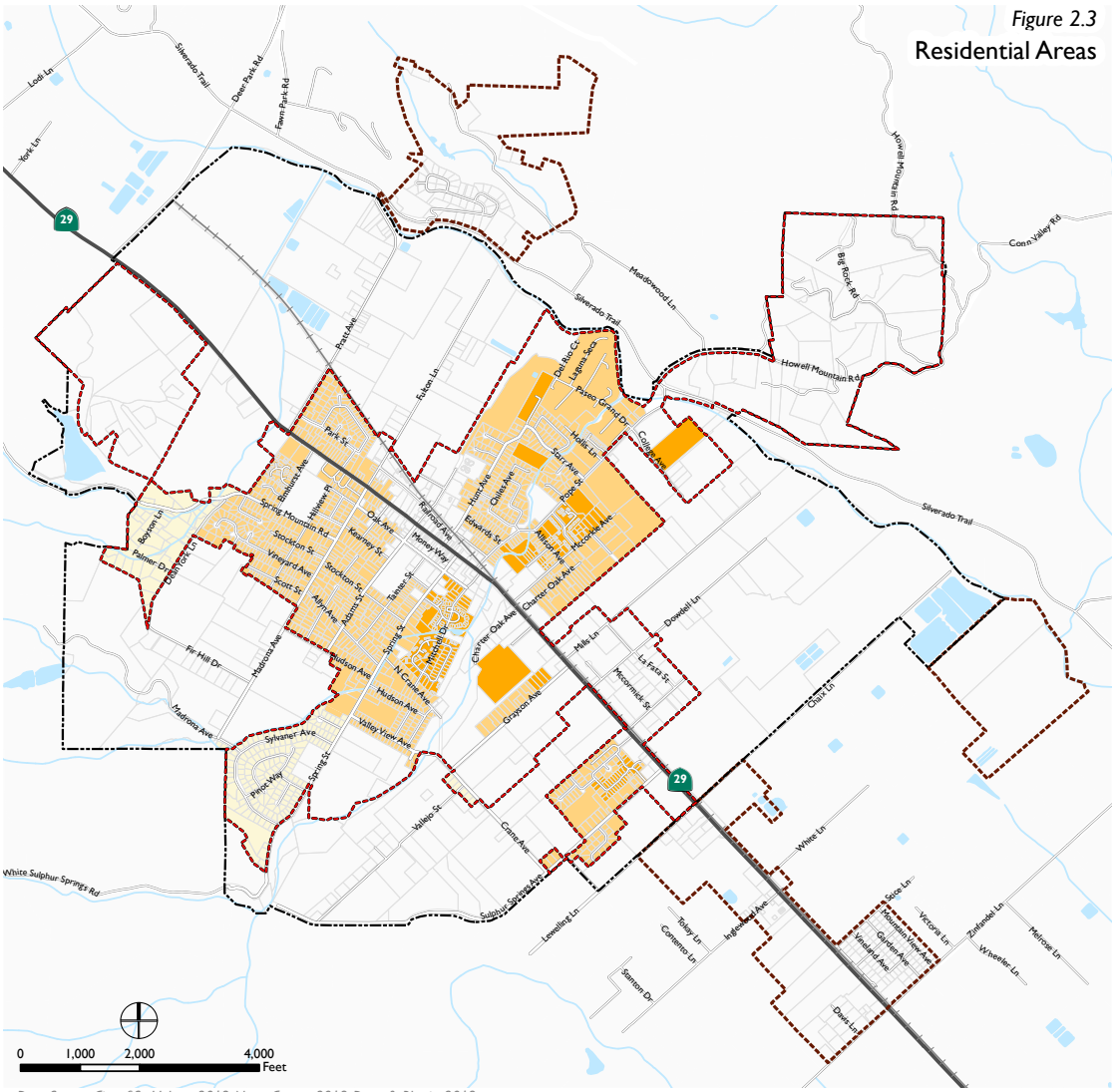
There are a variety of residential densities including single family, multi-family and secondary dwelling units.

Residential Areas

St. Helena has a variety of residential areas that include single family, multifamily, and secondary residential housing options. These neighborhoods support a range of lifestyles at a broad spectrum of household income levels. Higher density infill development can expand housing options citywide, but the impact to neighborhoods with regard to traffic, parking, and public safety - where difficult fire access, roads with parking on both sides, and sidewalks without street separation can result in accidents - should be carefully considered. The creation of mixed-use areas with retail in the heart of the city can also increase housing options. Residential land use designations should encourage the development of accessible and diverse neighborhoods, where appropriate. Figure 2.3 highlights residential areas.

- **Low Density Residential (LDR)**. The LDR land use designation includes single-family detached homes, accessory dwelling units (sometimes referred to as "second units"), limited agricultural uses, and similar and compatible uses. This designation permits residential densities between 1.0 and 5.0 dwelling units per acre. The LDR designation applies to limited areas of the city with large, residentially-subdivided parcels, particularly those near the city's perimeter.
- **Medium Density Residential (MDR).** The MDR land use designation includes single-family attached and detached homes, and compatible uses. This designation permits residential densities between 5.1 and 16.0 dwelling units per acre. Retained from the 1993 General Plan, the MDR designation is the City's predominant residential designation and it is intended to maintain a development pattern in St. Helena's higher density areas that is consistent with historic development patterns.
- **Higher Density Residential (HDR).** The HDR land use designation can accommodate single-family and multi-family residential housing, apartments, and group quarters. This designation permits residential densities between 16.1 and 28.0 dwelling units per acre.

Figure 2.3
Residential Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

GENERAL PLAN UPDATE
City of St. Helena

DYETT & BHATIA
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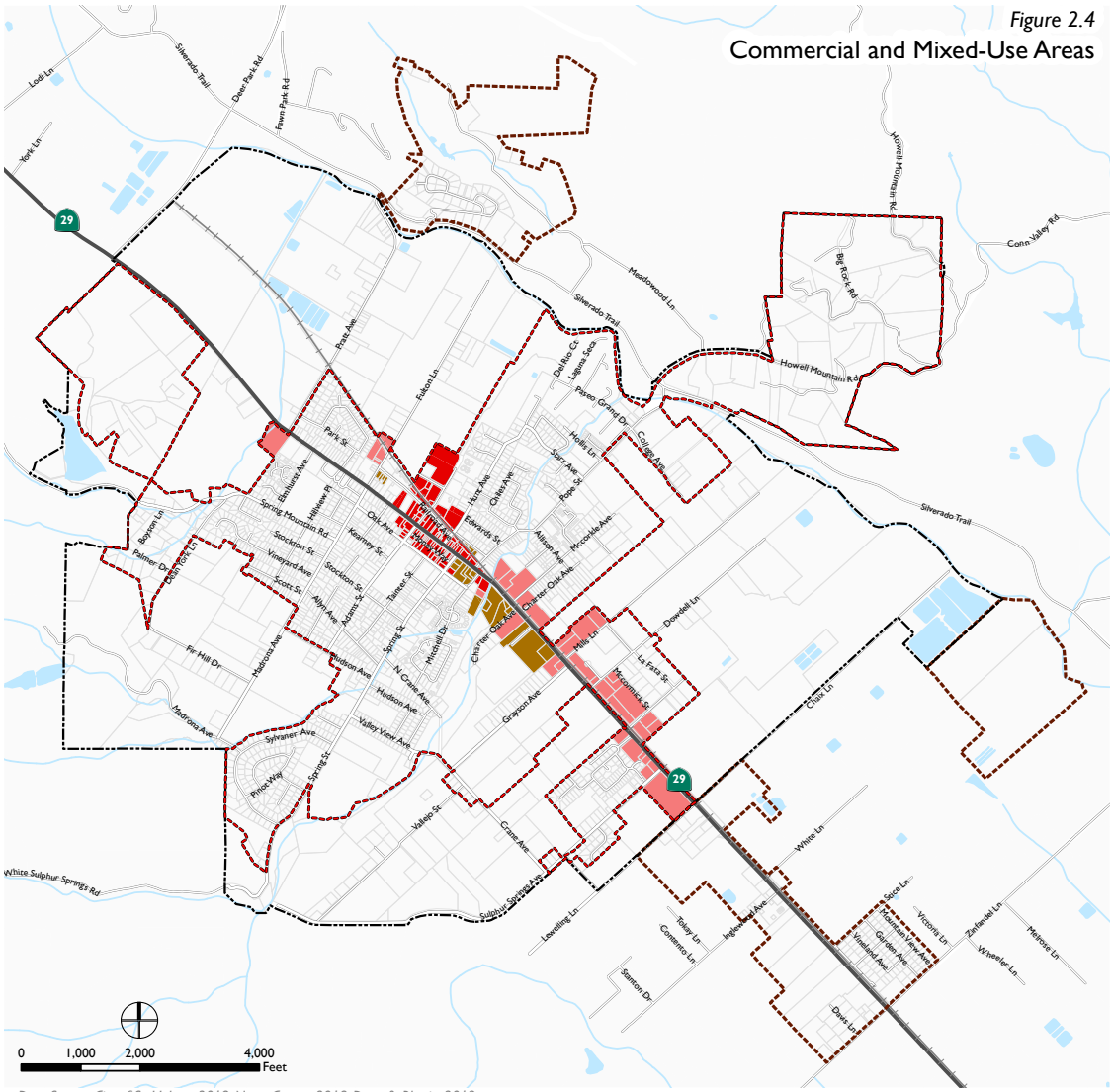
Commercial uses include restaurants, cafes, retail and offices.

Commercial and Mixed-Use Areas

St. Helena has a number of commercial areas that provide retail and commercial services. Businesses serve tourists, city residents, and residents of the unincorporated agricultural areas who have traditionally traveled to St. Helena to shop for goods and services. In the city's historic Central Business District, a small amount of higher-density, mixed-use development that is context appropriate can expand housing options while also supporting additional retail and commercial services. Figure 2.4 highlights commercial and mixed-use areas.

- **Mixed-Use (MU)**. The MU land use designation allows medium- to high-density residential mixed with retail, office, restaurant, or other commercial uses. The maximum allowable residential density in MU areas is 20 dwelling units per acre. The intent of this land use designation is to protect the Urban Limit Line by encouraging a mix of uses at infill locations and reduce greenhouse gas emissions by locating housing opportunities within close proximity to commercial and retail.
- **Central Business (CB).** The CB land use designation includes retail and commercial uses that serve local residents and the surrounding area. Typical CB uses include offices, restaurants, specialty retail and lodging, with particular emphasis on pedestrian-oriented retail and service uses on the ground floor level and offices located on upper floors. Residential uses can be considered for upper floor areas but are subject to discretionary use permit review and approval. The maximum allowable FAR in CB-designated areas is 2.0. The CB district extends from Sulphur Creek along Main Street to midway between Adams Street and Pine Street, west to Oak Avenue and along the north side of Adams Street east of Main Street.
- **Service Commercial (SC).** The SC land use designation includes service and retail uses that have larger space needs than are available in the Central Business District. Potential SC uses include offices, restaurants, service stations, and lodging, with a maximum allowable FAR of 0.50. The SC designation includes areas fronting State Route 29/Main Street south of Sulphur Creek.

Figure 2.4
Commercial and Mixed-Use Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Central Business
- Service Commercial
- Mixed-Use
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

GENERAL PLAN UPDATE
City of St. Helena

DYETT & BHATIA
Urban and Regional Planners

Industrial areas provide important locations for light manufacturing and agriculture-related uses.

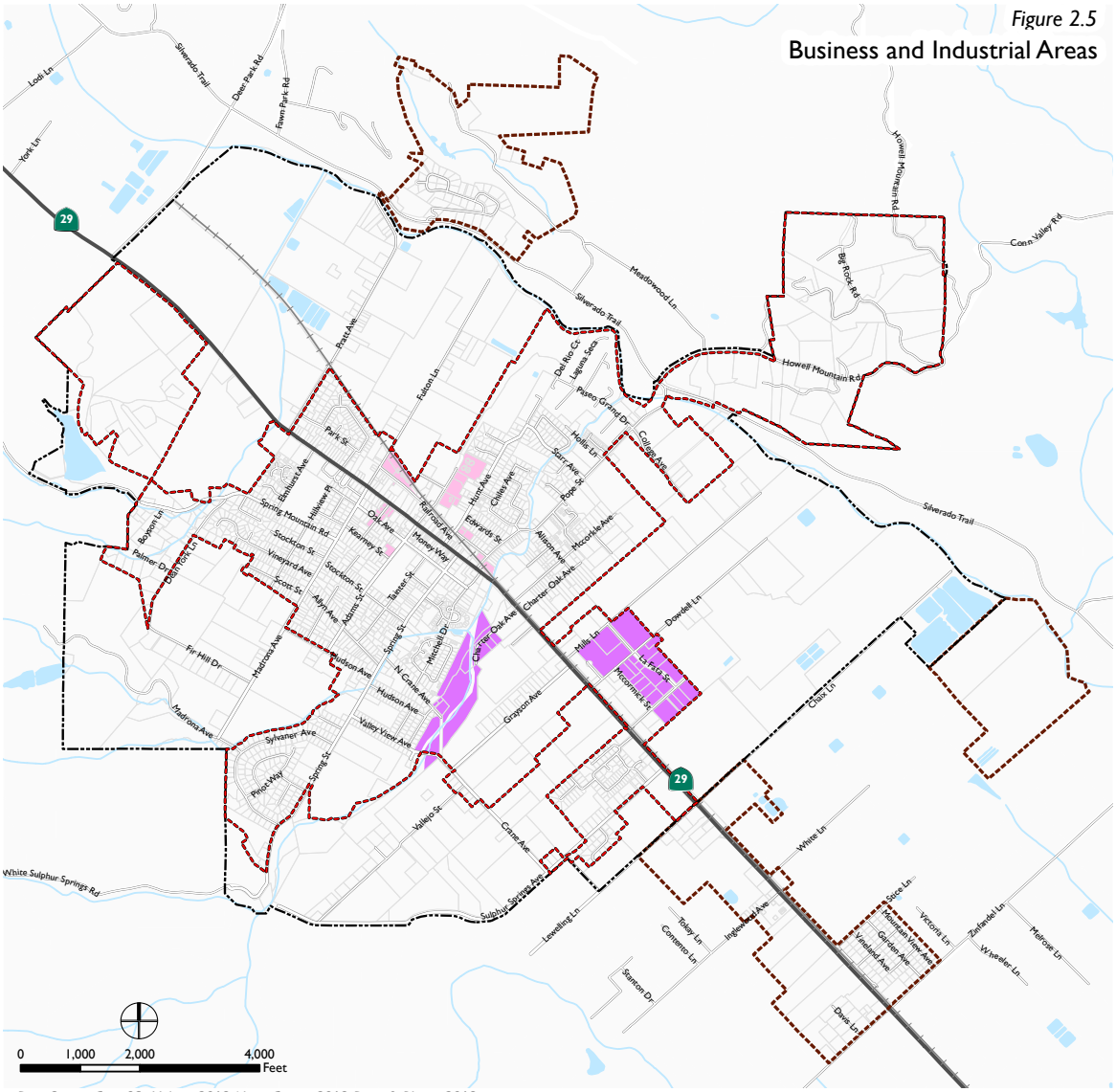
Business and Industrial Areas

St. Helena has limited areas designated for business and industrial uses. These uses are important to the community's economic health, serving St. Helena residents as well as residents and businesses in the surrounding unincorporated areas. Figure 2.5 highlights business and industrial areas.

- **Business and Professional Office (BPO).** The BPO designation allows for professional and administrative office uses, including medical, financial, and similar uses. Residential uses in this designation can be considered for upper floor areas, subject to discretionary use permit review and approval. The maximum allowable FAR is 0.50. BPO areas are located throughout the city and provide a compatible, transitional use between commercial and residential areas.
- **Industrial (I).** The Industrial land use designation includes industrial parks, warehouses, light manufacturing, and auto and farm-related uses. The maximum allowable FAR is 0.50. Industrial areas are located south of Mills Lane and east of State Route 29; along Sulphur Creek between State Route 29 and Valleyview Street; and east of State Route 29, south of Mills Lane. An Urban Reserve Area is designated to the east of the existing industrial area south of Dowdell Lane for future expansion of this area.

Figure 2.5

Business and Industrial Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Office
- Industrial
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Agriculture designations make up more than 48% of the land within the City.

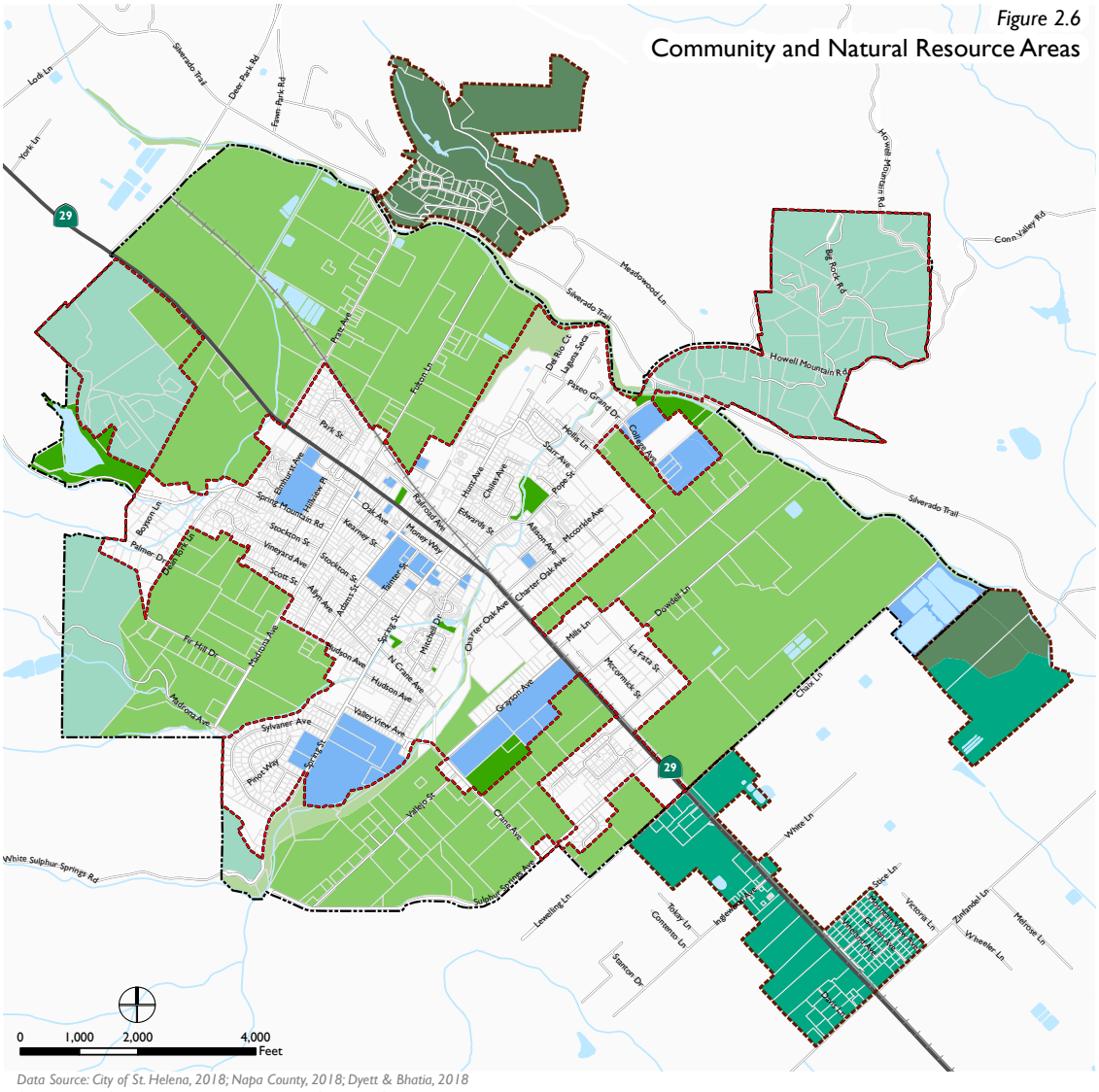
Community and Natural Resource Areas

St. Helena has a wide range of agriculture, parks, open spaces, and civic uses that serve a diverse range of community needs. Natural areas, such as the creeks and hills, offer opportunities for preservation and conservation. Public facilities provide opportunities for social and community development. Land use planning should aim to improve these amenities and enhance accessibility for all city residents. Figure 2.6 highlights community and natural resource areas.

- **Woodland and Watershed (WW).** The WW designation includes very low density residential that ensures the protection of wildlife, vegetation, open space, and watershed resources. This designation applies to steep hillsides at the city's westernmost and easternmost boundaries, with the intent to accommodate low-density, estate type development in locations that are less suitable for agricultural use. The minimum allowable parcel size is five acres.
- **Agriculture (AG).** The AG land use designation includes agricultural and winery uses with restricted single family residential and public/quasi-public uses. This designation applies to large areas of the valley floor that surround the city's urban core. With the exception of hillside areas designated WW, all lands outside the Urban Limit Line are designated AG regardless of their size or actual use. Minimum parcel sizes for new parcels in AG areas range from 20 to 40 acres. However, wineries in AG land may utilize a small portion of onsite land for provision of affordable employee housing thus alleviating some of the low and moderate housing needs in the city, while simultaneously reducing commute traffic.
- **Public/Quasi-Public (PQP)**. The PQP land use designation provides for government-owned facilities, public and private schools, and quasi-public uses such as churches, community/public serving endeavors, and cemeteries. The maximum FAR for the PQP designation is 0.50. The PQP designation occurs throughout the city, and includes the City library, all of the public schools, some of the private schools, all churches, cemeteries, and the City-owned wastewater treatment plant.

Figure 2.6

Community and Natural Resource Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

St. Helena General Plan

- Public and Quasi-Public
- Parks and Recreation
- Agriculture
- Open Space
- Woodlands and Watershed

Napa County General Plan

- Agricultural Resource
- Agriculture, Watershed and

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

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Urban and Regional Planners

- **Parks and Recreation (PR)**. The PR land use designation includes public parks with recreation uses. It applies to all existing public parks and proposed park sites.
- **Open Space (OS)**. The OS designation includes open spaces that are devoted to natural resource preservation and management, passive outdoor recreation, multi-use trails, public health, and safety. All OS areas are associated with stream corridors that pass through or are adjacent to the city, including the Napa River, Sulphur Creek, and York Creek. Roads are part of Open Space, but are not contributors to natural resource, public health, recreation, etc. as stated above.

The Urban Limit Line marks the limit of where development is permitted.

GROWTH MANAGEMENT

St. Helena aims to contain development and preserve agricultural lands in and adjacent to the city. Tools for accomplishing this include the Urban Limit Line, designated Urban Reserve Areas, and the Residential Growth Management System. Figure 2.7 illustrates St. Helena's Urban Limit Line and Urban Reserve Areas.

Urban Limit Line

The Urban Limit Line is a parcel-specific boundary that marks the limit of where urban development is permitted within the incorporated area of St. Helena. The intent of the Urban Limit Line is to discourage urban sprawl by containing urban development within designated areas during the planning period (see Figure 2.7).

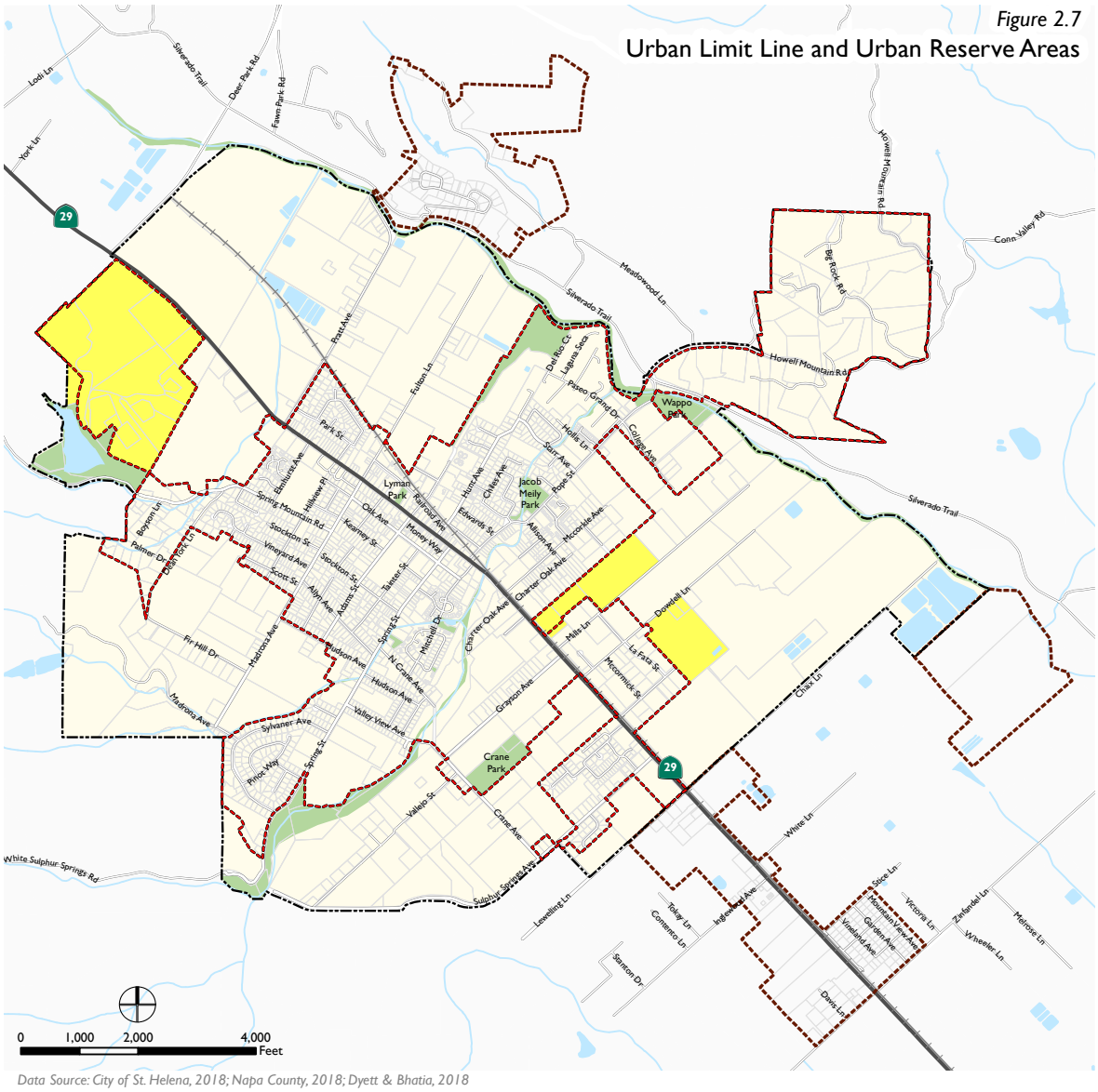
Land outside the Urban Limit Line, but inside the incorporated area, is designated for agricultural uses. Given the long-term nature of the General Plan and the potential for unforeseen circumstances, the Plan anticipates the potential need to expand the urban area by identifying Urban Reserve Areas.

Urban Reserve Areas

Urban Reserve Areas can be considered for urban development after urban sections within the Urban Limit Line are developed and if additional land is needed

Figure 2.7

Urban Limit Line and Urban Reserve Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Urban Limit Line
Urban Reserve Areas
Study Areas
City of St. Helena
Railroad
Parks and Open Space
Water Features

for urban uses. The Urban Reserve Areas, which are contiguous with the existing urban area, have been carefully located to encourage thoughtful, measured growth and to ensure that further urban development will maintain the compact development pattern desired by the community.

Urban Reserve Areas are all designated Agricultural (AG) and are expected to remain in agricultural use or undeveloped for the foreseeable future. Zoning in the Urban Reserve Areas will be the same as in other areas designated for agriculture. Zoning changes of any specific Urban Reserve Areas will be determined by the City Council at the time of incorporation within the Urban Limit Line. Such changes will depend upon many factors, including: compatibility with existing or proposed surrounding uses; availability of services; demand for the proposed uses; the availability of other suitable areas; and the agricultural resource value of the land.

Locational suitability and timing will be considered when considering changes to the Urban Limit Line and incorporation of Urban Reserve Areas. Requests for expansion of the Urban Limit Line will be considered in logical groupings that reflect the best long-term interests of the City, and will not be considered on a parcel-by-parcel basis, or in a manner that would permit non-contiguous development.

Residential Growth Management System (GMS)

The Residential Growth Management System limits (GMS) the number of building permits available for residential growth each year. That limit, as of the time of the General Plan update in 2018 is nine (9) residential units/year, with exceptions given for affordable housing, accessory dwelling units, and in other circumstances as spelled out in the City's implementing Growth Management Ordinance. The City, as part of its periodic review of the GMS, should consider the assigned Regional Housing Need Allocation (RHNA) number for a given Housing Element cycle when establishing limits. This will help to ensure consistency with the larger Bay Area's growth direction which encourages development in Priority Development Areas (PDAs) near transit and job centers. The regional growth strategy indicates that development outside the PDAs encourages sprawl, and contributes to traffic congestion and environmental impacts such as reduced air quality and loss of open space and Agricultural lands. No PDAs have been established in St. Helena.

A growth strategy principle is to maintain high-quality design and community character.

GENERAL PLAN STRATEGY

The General Plan strategy presents an outline for the evolution of the city. This strategy is grounded in a set of planning principles and identifies key General Plan Change Areas and land use capacity in those areas. Each of these topics is described in more detail below.

Growth Strategy Principles

The principles for guiding future growth in St. Helena are based upon the city's unique development pattern, vision for a sustainable future and its growth management. The following planning principles apply to the land use development strategy:

- Protect agricultural lands located outside the Urban Limit Line.
- Preserve agriculture, green, and open space within the Urban Limit Line to ensure the city maintains a rural and small-town character with sufficient "fingers of green", particularly in light of St. Helena's longstanding significant inadequacy of park land. (See Parks and Recreation Element).
- Focus new residential and commercial growth inward on appropriate infill sites.
- Maintain community character by requiring high-quality design and by avoiding "big box" development patterns and styles for commercial, industrial, and residential growth.
- Ensure that growth is sustainable for the long term and does not strain natural resources, services, or quality of life.

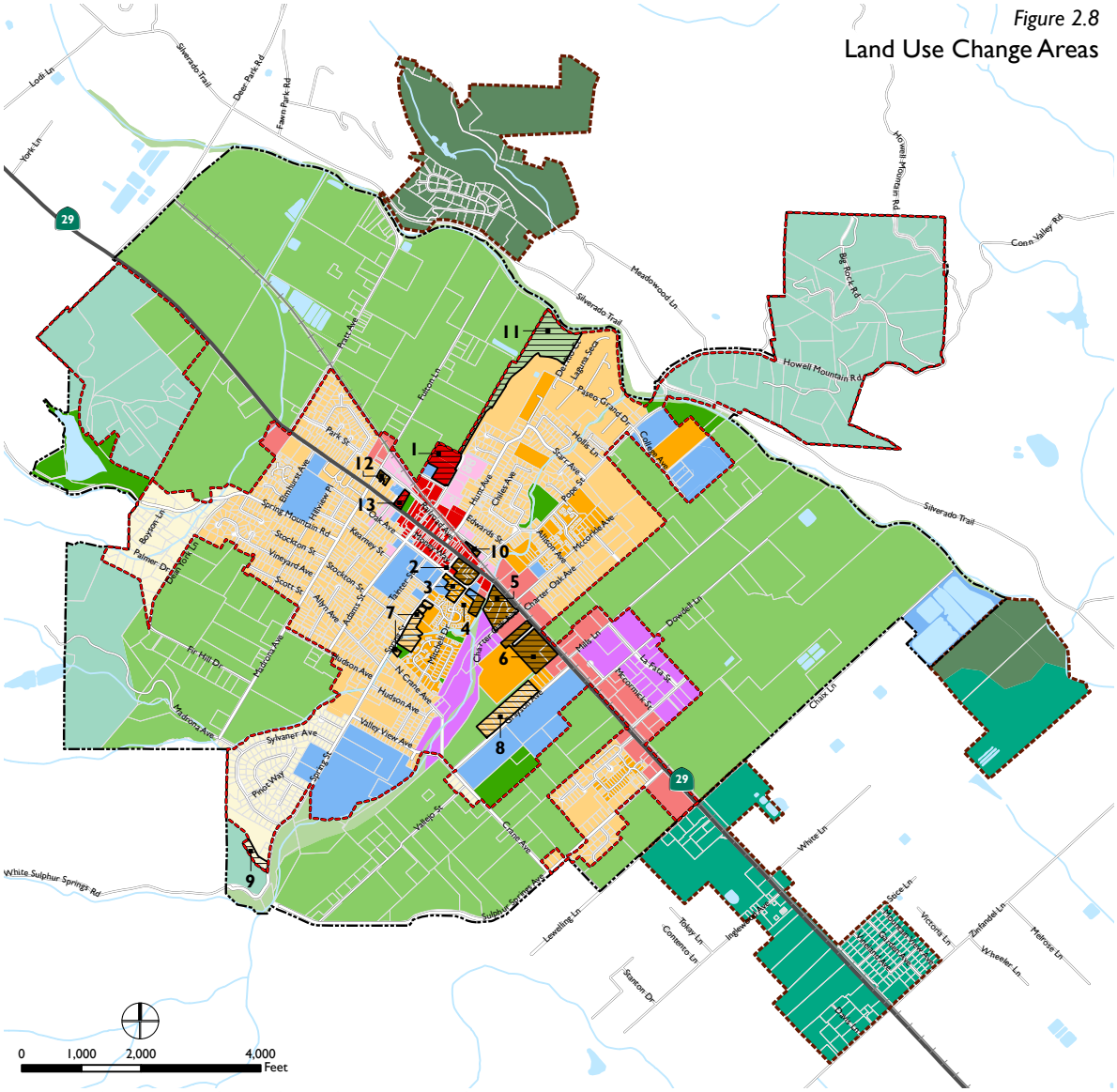
General Plan Change Areas

During the General Plan Update process 13 sites were identified for land use change, including sites for Mixed-Use, which is a new land use designation. These sites are located within the Urban Limit Line (with some minor shifts) and include parcels with commercial, mixed-use, and residential designations. Figure 2.8 shows the land use change areas that correspond to the list below.

1. **Adams Street and Library Lane (5.66 acres):** The proposed development program for the Adams Street property involves designating the entire site, with the exception of the library, as Central Business District. The library site will remain Public/Quasi Public. A modification of the Urban Limit Line is also proposed, which will increase the developable area by 0.83 acres and orient development along Adams Street.
2. **Main Street, Spring Street and Oak Avenue (2.61 acres):** M=Mixed-Use is proposed for this area to allow a mix of commercial, office, and residential development.
3. **Mitchell Drive and Oak Avenue-Northwest (2.04 acres):** High Density Residential is proposed for this area to allow for higher density development within walking distance to downtown.
4. **Mitchell Drive and Oak Avenue-Southeast Side (1.58 acres):** Mixed-Use is proposed for this area to allow a mix of commercial, office, and residential development.
5. **Main Street and Charter Oak Avenue (12.12 acres):** Mixed-Use is proposed for the eastern portion of the parcel and Industrial for the western portion of the property.
6. **Main Street and Vidovich Avenue (14.44 acres):** This parcel has a Mixed-Use General Plan land use designation, and the Vineland Station Hotel Project, a mixed-use project, has been approved for the location.

The Adams Street change area includes 5.66 acres adjacent to the City Library.

Figure 2.8
Land Use Change Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Change Areas

St. Helena Land Use

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Service Commercial
- Mixed-Use
- Office
- Industrial
- Public and Quasi-Public
- Parks and Recreation
- Agriculture
- Open Space
- Woodlands and Watershed

Napa County Land Use

- Agricultural Resource
- Agriculture, Watershed and
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
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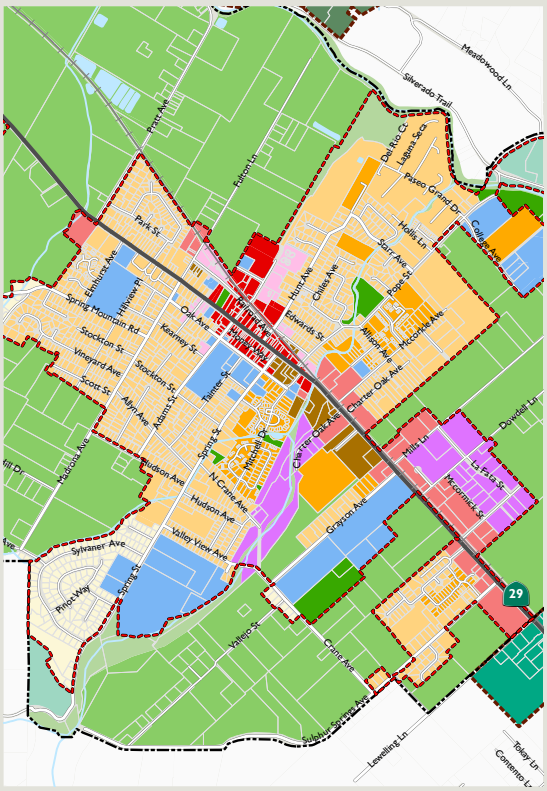
7. **Spring Street and St. James Drive (4.65 acres):** Medium Density Residential is proposed for this area to accurately reflect existing densities.
8. **Grayson Avenue (7.01 Acres):** Medium Density Residential is proposed on these parcels to allow more flexibility in density for this area.
9. **West end of Spring Street (14.31 acres):** This area includes a modification to the Urban Limit Line and an identical shift expanding the Low Density Residential area by 1.49 acres. This change is made to better reflect the flat portion of this parcel.
10. **Church Street Parking Lot Parcels (0.39 acres):** Redesignate the four mid-block parcels adjacent to the railroad from Medium Density Residential to Mixed-Use or allow the parcels to be developed as a parking lot.
11. **Flood Control Project Site (15.7 acres):** Redesignate this parcel (the flood control project site) from Medium Density Residential to Open Space.
12. **Railroad Avenue (4 parcels):** Adjust the General Plan designation for parcels 1547 to 1569 on Railroad Avenue from Medium Density Residential to Mixed-Use.
13. **City Hall Site:** The Central Business District (CBD) designation is proposed for the property where City Hall is currently located.

CONCEPTS, TRENDS AND IDEAS

The Relationship between Land Use and Zoning



The General Plan Land Use and Growth Management Element establishes a broad vision and framework for land use in St. Helena. It sets forth policies and implementing actions that are intended to guide local decision-makers over the life of the Plan. In contrast, the Zoning Ordinance details specific standards and design guidelines to regulate development. The functions of these two planning tools are described in further detail below.

St. Helena's Land Use and Growth Management Element

- Defines and locates land uses throughout the City.
- Specifies acceptable building heights and densities per land use type.
- Describes the intent and direction of St. Helena's growth.
- Includes overarching, citywide development principles, goals and policies to achieve a high quality built environment.

St. Helena's Zoning Ordinance

- Regulates density (number of residential dwelling units per acre) and intensity (floor area ratio) of development.
- Specifies standards for site design, including open space, building orientation, massing, setbacks and relationship to the street and adjacent properties, parking requirements, and elevation.
- Provides incentives for affordable housing.
- Establishes allowed and prohibited uses.

Land Use Capacity

Several factors contribute to managing and guiding new growth in St. Helena. The General Plan Land Use and Zoning maps describe where different land uses are permitted and the intensity of development that may be allowed. The Land Use Change Areas map (Figure 2.8) and Housing Opportunity Site map (see Housing Element Figure 1.0) present locations where new development is likely to occur in the next 20 years. The Growth Management System limits the allowed number of new residential permits to a maximum of nine (9) new residential units per year. That represents a total of 72 units over the eight-year term of the Housing Element, which exceeds the City's 2015 to 2023 RHNA allotment of 31 total residential units. Established by the State of California in 1969, RHNA requirements directly influence how St. Helena considers population growth. The State Housing and Community Development Department (HCD) works with the various regional Councils of Governments (COGs) throughout the state to identify and allocate the supply of housing necessary to meet the existing and projected growth in population and households in California (also see the Housing Element).

St. Helena functions as a service center for surrounding towns and unincorporated areas.

2.3 Key Findings

There are several challenges and opportunities facing St. Helena related to land use and growth management. The following key findings are based upon comprehensive existing conditions analysis and community input.

- Regional growth forecasts prepared by the Association of Bay Area Governments (ABAG) in 2013 anticipate that St. Helena will add 400 new residents between 2015 and 2040. The City should be aware of long-term population projections when developing General Plan land use policies.
- The City's Residential Growth Management System limits residential growth in order to protect agricultural land and ensure that the City can provide adequate public services, natural resources, and infrastructure necessary to meet increased need.
- St. Helena experiences high commercial rents and, except for the 2008 and 2009 recession, relatively high demand for additional commercial and office space in the city. The demand for office space is again increasing, and commercial rents are increasing as a result.
- There are a number of light industrial and commercial areas with a potential for development or redevelopment, particularly in the vicinity of State Route 29 south of Sulphur Creek.
- In February 2005, the City adopted the Highway 29 Specific Plan, which outlines circulation changes, roadways extensions, traffic signal installations, and streetscape improvements along the State Route 29 corridor west of the Sulphur Creek Bridge.

- Despite its relatively small population, St. Helena functions as a service center, and provides public services for surrounding towns and unincorporated areas, including Meadowood, Madrone Knoll, Calistoga, Angwin, Deer Park, Rutherford, and the unincorporated area south of St. Helena. Through efficient land use planning, the City can ensure that St. Helena continues to serve this function while meeting the needs of its residents.
- Land use changes and development in the unincorporated areas adjacent to the city limits can have a significant impact on St. Helena. Close coordination with Napa County is essential for managing adverse impacts on St. Helena and coordinating City planning efforts accordingly.
- St. Helena has been successful in preserving agricultural lands within the city limits. The California Department of Conservation and Farmland Mapping and Monitoring Program identifies only one significant incidence of land converted from farmland to an urbanized use, which was the conversion of eight acres of farmland into an expansion of Crane Park. County-wide, most agricultural land conversions have been from rangeland or lower-value uses, such as orchards, to vineyards for wine production.

2.4 Goals

The goals of the Land Use and Growth Management Element are:

Manage Growth and Maintain Community Character.

St. Helena is committed to preserving its existing community character, maintaining agricultural lands, managing growth and the impacts of tourism, and ensuring that adequate infrastructure and facilities are provided.

Promote High-Quality and Sustainable Development.

St. Helena is dedicated to a high standard of quality, economic viability and ecological sustainability with respect to the design, planning, and construction of new and renovated public and private facilities.

2.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Growth Management;
2. Residential Neighborhoods;
3. Commercial Districts;
4. Industrial Districts;
5. Agricultural Uses; and
6. Public Facilities.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

topic area
1 GROWTH MANAGEMENT

Policies

LU1.1 Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building and stormwater management and paying its share of development impact fees, while minimizing impacts on sewer, water, energy, and natural resources.

LU1.2 Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water, and storm drainage, will only be extended to development within the Urban Limit Line.

The Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies or when logical to include developed lands receiving urban services from the City. Expansion outside the Urban Limit Line should first be considered in Urban Reserve Areas. Expansion into other areas outside the Urban Limit Line should be considered only when the proposed land use is found to further the goals and long-term objectives of the City and does not result in adverse impacts to adjacent uses in either the urban or rural areas.

topic area
1 GROWTH MANAGEMENT

LU1.3 Support agricultural and low-intensity uses beyond the Urban Limit Line.

LU1.4 In order to minimize and postpone the need for expansion of the Urban Limit Line, encourage infill development within currently developed areas.

LU1.5 Require new development to provide adequate infrastructure and urban services, including compliance with the policies and implementing actions affecting new development as set forth in the Public Facilities and Services Element.

LU1.6 Support the redevelopment of vacant and underutilized sites within the downtown area with mixed-use development opportunities. Encouraging infill development with a mix of uses will support a pedestrian-oriented, vibrant retail and commercial district that is centrally located and easily accessible to residents and neighborhoods.

LU1.7 Continue to limit the approval of market rate residential development to the maximum allowed under the Growth Management System. Regulated affordable units and second units are exempt from this limitation.

Infill development is encouraged in order to postpone the need for expansion of the Urban Limit Line.

topic area
1 GROWTH MANAGEMENT

Implementing Actions

LU1.A Continue to allow the construction of second units – also known as accessory dwelling units – and consider allowing the division of single-family homes into two or more units under appropriate circumstances, in order to increase residential density and housing availability without requiring an extension of the Urban Limit Line.

LU1.B Rezone appropriate sites with land use designations such as Central Business, Service Commercial, and Mixed-Use, in accordance with the General Plan Land Use Map. Include provisions to allow for compatible uses on the same site, either in one structure or adjacent structures. The mix of uses can be vertical or horizontal and can include attached residential development in keeping with the integrity of historic structures and historic districts.

LU1.C Continue to update the City's housing inventory to track the status of residential growth by unit type and affordability level.

topic area
1 GROWTH MANAGEMENT

LU1.D Review the City's housing needs every five to eight years in conjunction with updates to the Housing Element to reassess housing priorities for the future years.

LU1.E Restrict the use of housing units as short-term rentals, except for those allowed by the Short-Term Rental Ordinance.

LU1.F Evaluate the effectiveness of the Growth Management System and consider the need for revisions in light of the City's Housing Strategy. As part of this effort, study options for incorporating a mechanism to assess the relative benefits a proposed residential project brings to the community, such as through a community benefits program.

LU1.G Work with property owners and the Napa County Local Agency Formation Commission to study the benefits of annexing lands adjacent to the City of St. Helena, where the City owns and operates critical municipal infrastructure, including utility infrastructure, and/or provides municipal services, or where the provision of municipal services to replace wells and aging sceptic systems would improve public health.

LU1.H In the event that unincorporated areas are annexed to the City, advocate for favorable tax-sharing agreements that ensure that the City receives the revenues necessary to support the municipal services and infrastructure required in those areas.

The City's housing inventory should be regularly updated.

topic area
2 RESIDENTIAL NEIGHBORHOODS

Policies

LU2.1 Promote a mix of housing types and price ranges that are consistent with the Housing Element RHNA categories of housing affordability.

LU2.2 Encourage new residential development that is consistent in design, size, color, and floor area ratio (FAR) with the older residences in the neighborhood.

LU2.3 Protect residential neighborhood views of surrounding vineyards and mountains.

LU2.4 Encourage the subdivision and/or development of larger parcels as Planned Unit Developments to ensure a more comprehensive and creative approach to planning the development as a single unit. This does not prohibit use of Planned Unit Developments on parcels less than three acres.

LU2.5 Encourage the development of higher density housing in areas near the center of the city and close to recreation and services, such as transit, retail, and public facilities.

LU2.6 Allow residential density at the higher end of the permitted range for single family development within Medium and High Density Residential Land Use designations as long as the development character of the single family area is maintained, including lot widths, orientation to street, building heights, onsite parking, traffic, and noise, among other considerations.

LU2.7 Ensure safe, walkable, and bikeable residential neighborhoods and vibrant, livable streets.

LU2.8 Ensure walkable and accessible neighborhoods through mixed-use development.

A mix of housing types and price ranges allows choice for residents.

topic area
2 RESIDENTIAL NEIGHBORHOODS

Implementing Actions

LU2.A Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.

LU2.B Develop and implement residential design guidelines and/or form-based codes, for single family and multiple family uses, to provide oversight and guidance for new buildings and renovations. Guidelines should ensure that new residential development is consistent with the design, size, and footprint of older residences in the neighborhood. Consider the impact of new development on surrounding residences.

(Also see the following elements: Community Design, Topic Area 3; and Economic Sustainability, Topic Area 3).

LU2.C Implement view shed protection review for residential development as part of an updated design review process.

LU2.D Continue to require residential developers to contribute to the provision of community facilities and services (e.g. parks, recreation facilities and programs, education facilities, traffic and transportation facilities, and services), consistent with State law requiring a nexus between project impacts and required mitigation.

LU2.E Update zoning standards to encourage the following criteria:

- A variety of lot widths and sizes, such as that found in the older areas of town;
- Garages at the rear of lots rather than on the street; or creative garage designs that incorporate the "garage door" frontage appearance to blend into the home;
- Lot coverage and floor area ratio (FAR) that is consistent with the scale of historic and older areas;
- Planting of street trees and planting strips along sidewalks; and
- Setbacks, building massing, and configuration consistent with older parts of neighborhoods.

topic area
3 COMMERCIAL DISTRICTS

Policies

LU3.1 Strengthen the downtown as the City's social and cultural core, and as the primary center of retail services. Facilitate a healthy mix of retail and commercial uses, residential development, entertainment, and lodging.

LU3.2 Enhance the pedestrian-oriented character of commercial areas and provide for convenient pedestrian and bicycle connections to encourage walking and reduce vehicle trips within the commercial area.

LU3.3 Support the redevelopment of auto-oriented commercial areas into pedestrian-friendly commercial uses.

LU3.4 Protect historic resources in the commercial areas and encourage appropriate rehabilitation and adaptive reuse.

LU3.5 Ensure that new retail and commercial development is compatible with and complementary to St. Helena's small-town image. In addition, within the City's Central Business District, new retail and commercial development should be of a scale and type that complements the historic character.

Downtown is the City's social and cultural core.

topic area
3 COMMERCIAL DISTRICTS

LU3.6 Continue to work with the County of Napa to review land use and design changes for projects in the unincorporated areas at the City's gateways.

LU3.7 Provide sufficient auto and bicycle parking in order to serve local businesses in the commercial districts. Ensure that all parking areas are well-designed and that auto parking spaces are hidden from pedestrian view, whenever possible.

LU3.8 Provide sufficient opportunities for offices that support the regional, agricultural-based economy and the local needs of the community.

LU3.9 In Mixed-Use, Service Commercial, and Central Business districts encourage residential and office uses in upper-story locations or locations along the periphery of the retail district. This will facilitate active and pedestrian-oriented commercial areas.

LU3.10 Encourage office development within Mixed-Use, Service Commercial, and Central Business districts to complement the pedestrian orientation of surrounding development.

LU3.11 Ensure that new commercial development does not obstruct view corridors to the mountains.

topic area
3 COMMERCIAL DISTRICTS

Implementing Actions

LU3.A Identify sites in the Central Business and Service Commercial districts for mixed-use development that are close to services and facilitate walking, bicycling, and transit use.

LU3.B Establish an inventory of all non-residential uses in the city and a program for monitoring future non-residential development. Combine this inventory with efforts to balance jobs and housing.

LU3.C Encourage retail services which do not require a consumer base larger than the population of St. Helena and its vicinity. For the purposes of the General Plan, "vicinity" is defined as the surrounding agricultural area for which St. Helena has historically provided goods and services, including Calistoga, Angwin, Deer Park, Meadowood, Madrone Knoll, Rutherford, and the unincorporated area south of St. Helena.

LU3.D Develop and implement commercial design guidelines and/or form-based codes to provide oversight and guidance for new buildings and renovations. Guidelines should ensure that new commercial development is consistent with the City's character, particularly in historic districts.

(Also see the Community Design Element, Topic Area 2)

topic area
3 COMMERCIAL DISTRICTS

LU3.E Prohibit retail commercial zoning on Main Street north of Pine Street.

LU3.F Limit the floor area and size of buildings in the Central Business and Service Commercial districts to ensure that new buildings are in scale with typical older buildings in the district.

LU3.G Pursue acquisition of 1301 Mitchell Lane to provide additional public parking facilities, or other City prioritized uses, in the Central Business District.

Sites within the Central Business and Service Commercial districts may be future locations for mixed-use development.

topic area
4 INDUSTRIAL DISTRICTS

Policies

LU4.1 Support and maintain a transitional zone around industrial areas to protect the health and safety of residential neighborhoods.

LU4.2 Support the development of industries that are consistent with viticulture and winery support services and similar, compatible uses. Support the role of the City as an agriculturally-based service center for the surrounding area, including Calistoga, Angwin, Deer Park, Meadowood, Madrone Knoll, Rutherford, and the unincorporated area south of St. Helena.

LU4.3 Ensure that industrial projects are designed and sited to provide a positive image of the community. Landscaping and setbacks should be used to enhance industrial buildings.

LU4.4 Ensure access to and from industrial areas that allows for safe and efficient circulation of goods and people.

topic area
4 INDUSTRIAL DISTRICTS

Implementing Actions

LU4.A Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.

LU4.B Develop and implement industrial design guidelines and/or form-based codes, to provide oversight and guidance for new buildings and renovations. Guidelines should ensure that new industrial development is consistent with the City's character.

LU4.C Evaluate the compatibility of the Industrial Area and existing heavy equipment use between Highway 29 and Crane Avenue and determine if re-zoning or other action is necessary to ensure safety and liability, hazard, and noise reduction in surrounding neighborhoods, schools, and parks.

Industrial uses that support surrounding agricultural uses are encouraged.

topic area
5 AGRICULTURAL USES

Policies

LU5.1 Discourage conversion of existing farmland to non-agricultural uses.

LU5.2 Encourage the County to continue to promote agricultural uses and to limit further development in unincorporated areas surrounding the city.

LU5.3 Strictly limit development on properties existing at the time of the adoption of this General Plan that are designated as agricultural land.

LU5.4 Support community-based agricultural uses within the city, including community gardens, orchards, and parks.

LU5.5 Encourage the use of sustainable agricultural practices.

LU5.6 Permit wineries and other agricultural-related industries to locate in the city if their location does not adversely impact surroundings, uses, or city services (water, traffic, etc.) or the quality and character of the community.

The Urban Limit Line strictly limits development in order to protect agricultural uses.

topic area
5 AGRICULTURAL USES

Implementing Actions

LU5.A Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.

LU5.B Continue to enforce the City's "right to farm" ordinance that protects the right of agricultural operations in agriculturally-designated areas to continue their operations, even though such practices may generate complaints from nearby established urban uses. Explore the feasibility of a notification system (such as flags, web-based information, etc.) for agricultural spraying so nearby residences can prepare accordingly.

LU5.C Explore the feasibility and desirability of implementing permanent agricultural protection for lands within the Urban Limit Line in the form of agricultural preserves.

LU5.D Identify sites for community gardens, orchards, and parks. Establish a program to maintain public areas within and surrounding community gardens and to administer the assignment of garden spaces and collection of use fees.

LU5.E Encourage local farmers to employ sustainable agricultural practices wherever possible. Support agricultural activities that incorporate best management practices related to sustainable agriculture, including participation in local programs such as the Napa Valley Vintners - Napa Green Program and the California Certified Organic Farmers certification program.

LU5.F Where proposed residential, commercial, or industrial development abuts lands devoted to agricultural use, require the non-agricultural uses to incorporate buffer areas to mitigate potential land use conflicts as a condition of approval for subdivisions or use permits. The type and width of buffer areas shall be determined by the City based on the character, intensity, and sensitivity of the abutting land uses. Prepare and adopt guidelines and regulations to

topic area
5 AGRICULTURAL USES

assist in the determination of the appropriate type and scope of agricultural buffer areas needed in circumstances that warrant the creation of such buffer areas.

LU5.G Evaluate all discretionary land use applications, rezonings, and/or General Plan amendments, including those outside the Urban Limit Line, to determine their potential for impacts on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance mapped by the State Farmland Mapping and Monitoring Program and avoid converting these farmlands where feasible. Where conversion of farmlands mapped by the state cannot be avoided, require long-term preservation of at least one acre of existing farmland of equal or higher quality for each acre of state-designated farmland that would be rezoned or redesignated to non-agricultural uses. This protection may consist of establishment of farmland easements or other similar mechanism, and the farmland to be preserved shall be located within the city and preserved prior to approval of the proposed discretionary land use application rezoning, or General Plan amendment.

LU5.H Prepare and adopt guidelines and regulations to assist in the determination of the appropriate type and scope of agricultural buffer areas needed in circumstances that warrant the creation of such buffer areas.

LU5.I Establish a Farmland Mitigation Program for future development that requires the permanent protection of farmland at a 1:1 ratio of the amount of farmland converted. The program should include provisions for the acquisition of agricultural conservation easements and payment of in-lieu fees as potential methods of farmland mitigation, where eligible agricultural mitigation lands must be located within the State of California and be of comparable or better soil quality than the land being converted, and in-lieu fees are to be used for the acquisition of a conservation easement, including costs associated with the transaction and long-term maintenance.

Farmland protection may consist of establishment of farmland easements.

topic area
6 PUBLIC FACILITIES

Policies

LU6.1 Provide a wide-range of high-quality public facilities, including parks, multi-use trails, schools, fire and police services, water and wastewater systems, and community centers.

Implementing Actions

LU6.A Update the zoning ordinance and map to be compatible with the General Plan Land Use maps and designation and public facilities and services element.

LU6.B Pursue sites for future public facilities, including parks, consistent with projected growth.

LU6.C Explore the feasibility and desirability of moving public facilities to the Adams Street property.

LU6.D Install community amenities, such as public restrooms, drinking fountains, benches, and trash and recycling containers in commercial districts. Ensure that community amenities are designed and installed to complement surrounding businesses and support the pedestrian-orientation of the street.

chapter three

economic sustainability

3 economic sustainability

St. Helena's Central Business District is located along Main Street with shops, cafes, restaurants and offices.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

3.1 Purpose of the Element

The Economic Sustainability Element is not a State-mandated General Plan element. This Element is included in the General Plan in recognition of the important role that economic sustainability plays towards achieving the overall community vision of meeting present needs without compromising the ability of future generations to meet their needs. By building on and protecting St. Helena's authentic small-town character, the Economic Sustainability Element establishes a path to enhancing the local quality of life while also valuing the role of visitors in the local economy. Policies and implementing actions in this Element should be considered in conjunction with policies in the other elements, particularly the Land Use and Growth Management, Circulation, and Public Facilities and Services elements.

The Economic Sustainability Element includes the following sections.

- **3.2 Economic Sustainability in St. Helena.** Defines and frames key economic sustainability issues (p. 3-3).
- **3.3 Key Findings.** Identifies key findings based on existing conditions analysis and extensive community outreach (p. 3-4).

- **3.4 Goals.** Defines overarching goals to guide policies and implementing actions (p. 3-7).
- **3.5 Policies and Implementing Actions**. Identifies policies and implementing actions to strengthen and enhance the local economy (p. 3-10).

3.2 Economic Sustainability in St. Helena

A sustainable approach to St. Helena's economy is intended to preserve the city's authentic, small-town character and quality of life, and leverage tourism to sustain its vibrant economy. The City strives to balance the impact of tourism with the desires of residents and business-owners, while recognizing the economic benefits that visitors bring, and the potential for tourism to contribute to the diversity of the community's social and cultural life. Creating a long-term, proactive approach to define and achieve local economic priorities will help the City remain economically viable in the future while giving consideration to infrastructure, water, and housing.

Developing a reputation for transparency in governance, characterized in part by predictable, streamlined processes that include built-in checks and balances and, to the extent possible, reduced uncertainty associated with required discretionary actions, will also help further economic development and sustainability in St. Helena. By improving its reputation as a service-oriented City government, St. Helena will improve its ability to attract and retain businesses that are compatible with the city's goals.

3.3 Key Findings

There are several challenges and opportunities facing St. Helena related to economic sustainability. The following key findings are based upon a comprehensive existing conditions analysis and community input, as well as the 2007 Local Economy and Economic Development Background Report.

- St. Helena has historically exhibited slow population, household, and housing growth.
- St. Helena's authentic small-town character, historic resources, and agricultural heritage are assets that enhance economic opportunities for local businesses. Protecting, promoting, and enhancing these resources is a critical for St. Helena's economic sustainability.
- Housing affordability is an important issue in St. Helena and housing availability is a key constraint to further local economic development. Increasing the supply of housing – and particularly of workforce housing – is critical to St. Helena's long-term economic sustainability.
- Revenue generation for the City is a key factor of economic sustainability and having retail on the ground floor of commercially-zoned parcels will help advance this objective.
- Commercial space is in limited supply in St. Helena and correspondingly high commercial rents impact the ability of businesses supplying everyday goods and services to locate or stay in St. Helena. Non-retail uses occupying ground-floor retail spaces, such as real estate offices, further drive up demand and rents for commercial space in St. Helena. Limiting the non-retail use of ground-floor spaces in key commercial areas may provide a more supportive environment for commercial uses that meet residents' everyday shopping needs. However, this must be weighed against the potential for vacancies to adversely affect the vibrancy of other businesses in the area.
- Consultations with the business community in St. Helena revealed that local businesses require the support of both local residents and visitors in order to thrive. Therefore, a balanced economic development approach that seeks to meet the needs of local residents while also recognizing that a substantial portion of the local employment base and the City's revenue base is depen-

The community supports maintaining locally owned and operated businesses, such as Steve's Hardware and Houseware.

dent upon the flow of tourism dollars to St. Helena will help the City establish a stronger Central Business District.

- Outreach efforts have indicated broad support in the community for maintaining the City's existing prohibition of formula restaurants, outlet and chain stores, and large-scale retail businesses to ensure that St. Helena's businesses continue to complement its distinctive small-town character.
- Local business leaders have expressed concerns regarding traffic issues in St. Helena and the availability of proximate parking for their employees. Local business leaders are also concerned about the City's water supply and policies. Addressing these challenges will be essential if the City is to achieve its long-term economic sustainability goals.
- The wine industry is the key driver of the economy of the entire Napa Valley. Continuing to support the wine industry is essential to maintaining the economic health of the community and the Napa Valley. Furthermore, diversifying St. Helena's economy to create new, compatible commercial activities and employment opportunities beyond the wine industry can greatly strengthen the economic vitality of the City.

- Tourism by the wine industry supports local businesses, the incomes of many local households, the wineries and agricultural operations of the Napa Valley and local government revenues. The Napa Valley's draw as a tourism destination will impact St. Helena regardless of local policies.
- Sustainable tourism practices that have a low impact on the environment and local culture, while helping to generate future employment for local people will allow St. Helena to enjoy the economic benefits of tourism while maintaining the city's authentic, small-town qualities.
- Economic development opportunities for St. Helena lie in low-impact, high-end tourism, as well as economic diversification in other sectors for which the city has competitive advantages, such as the arts, healthcare, and financial services sectors.
- St. Helena serves as a commercial and business center for the surrounding towns and unincorporated areas, including Calistoga, Angwin, Deer Park, Meadowood, Madrone Knoll, Rutherford, and the unincorporated area south of St. Helena. However, the collective population base of St. Helena and surrounding unincorporated communities is still not sufficient to support some types of commercial retail and services. Residents will continue to travel to larger communities, like the City of Napa or beyond, to shop for certain types of goods and to obtain certain services.

3.4 Goals

The goals of the Economic Sustainability Element are:

Meet Residents' Needs.

St. Helena is dedicated to meeting the basic needs of residents of the city and surrounding service areas, including Calistoga, Angwin, Meadowood, Madrone Knoll, Deer Park, Rutherford, and the unincorporated area south of St. Helena. The City recognizes that residents will continue to travel to larger cities in the region for certain goods and services. Through its adopted local policies and actions, St. Helena will strive to increase the proportion of residents' employment, housing, entertainment, and basic shopping and services needs that can be satisfied locally.

Create and Implement an Economic Sustainability Strategy.

It is imperative that St. Helena create and implement an Economic Sustainability Strategy that will serve as a "roadmap" to achieve the city's goal of economic sustainability. This strategy should include a framework within which the effects of policies and actions can accurately be measured and tracked, as well as forecasted into the future. Specifically, the City should create a short- and long-term economic model that aids in estimating the impacts, benefits, and costs that local policies and actions, as well as outside micro and macroeconomic forces, may have on the local economic environment. This model should also consider and incorporate long-term enhancements to local quality of life and the environment as well as metrics for measuring such elements.

Tourism generated by the wine industry supports local businesses throughout St. Helena.

CONCEPTS, TRENDS AND IDEAS

Sustainable Economic Development

Smaller cities, like St. Helena, often employ local economic development strategies to increase their economic capacity and prosperity. Local economic development approaches reach beyond traditional business attraction and retention and growth models to include longer-term enhancements to the local economy and prosperity into the future. Typical measures can include strategies to minimize retail leakage, support local artisans and small business owners, and enhance workforce development programs in key sectors of the local economy. In addition, local economic development models emphasize strengthening ties between the private, public and non-profit sectors to ensure a collaborative approach to creating better conditions for economic growth and investment.

A sustainable economic development strategy builds upon traditional and local economic development models to include long-term enhancements to local quality of life measures and the environment. In this way, economic sustainability extends the scope of economic growth models beyond the goal of achieving annual fiscal gains. Implementation approaches and measures vary according to the needs of the local economy, but may incorporate additional emphasis on local arts and cultural expression, educational improvement, public health and environmental sustainability.

Local economic development (LED) strategies include supporting local businesses and niche markets, such as culinary businesses and wineries.

St. Helena is dedicated to enhancing local-serving businesses that meet residents' needs.

Balance the Benefits and Effects of Visitors.

St. Helena will promote sustainable tourism practices that allow the City to enjoy the economic benefits of visitors to the region while maintaining the authentic small-town quality of life.

Generate Revenue.

St. Helena will promote economic development initiatives that generate diversified revenues to support local services and move towards greater self-sufficiency. Increased revenue generation for St. Helena is key to achieving other goals for the community, as without additional financial resources the City's abilities to pursue and achieve such goals is limited.

3.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Economic Diversification;
2. Sustainable Tourism; and
3. City Government

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

topic area
1 ECONOMIC DIVERSIFICATION

Policies

ES1.1 Maintain central St. Helena as the social, cultural, and economic heart of the City by supporting infill and redevelopment of vacant and underutilized parcels in the central St. Helena area.

ES1.2 Identify and expand economic sectors in which the City has competitive advantages, and capitalize on these strengths in order to diversify local economic activities and strengthen St. Helena's role as an agriculturally-based service center for the surrounding area.

ES1.3 Ensure the long-term infrastructure needs and priorities of the community are met as part of an economic approach to economic vitality and sustainability.

(Also see the Public Facilities and Services Element for policies and implementing actions related to infrastructure)

ES1.4 Encourage the creation of workforce housing to support the local employment base in keeping with small town smart growth.

(Also see the Housing Element, Topic Area 1)

ES1.5 Encourage commercial uses that provide basic, everyday shopping and services for residents.

ES1.6 Support local arts, cultural activities, and entertainment that can contribute to the local economy.

(Also see the Arts, Culture, and Entertainment Element)

Central St. Helena is the social, cultural and economic heart of the City.

topic area
1 ECONOMIC DIVERSIFICATION

Implementing Actions

ES1.A Develop, adopt, and implement an Economic Sustainability Strategy that addresses economic diversification and sustainability, as well as local fiscal and infrastructure priorities. This strategy will include the development of the necessary tools to implement the strategy.

ES1.B Update the Municipal Code to (a) encourage to the extent feasible businesses that are complementary to St. Helena's small-town character and that provide a range of goods to local residents; (b) define and permit non-chain, discount type stores while maintaining the existing provisions in the Municipal Code that prohibit formula restaurants, outlet, and chain discount-type stores, and retail businesses over 10,000 square feet in size; and (c) limit certain non-retail uses, such as real estate offices, from occupying ground-floor retail space in Central St. Helena.

(Also see the Arts, Culture, and Entertainment Element, Topic Area 4).

ES1.C Develop a strategy to increase funding and resources to support arts and history as part of the City's overall economic development program. Additional policies and implementing actions regarding support for the arts may be found in the Arts, Culture, and Entertainment Element.

ES1.D Consider the establishment of a Business Improvement District.

ES1.E Provide development incentives for new visitor-serving businesses to develop affordable workforce housing either through construction of housing or payment of an appropriate in lieu fee to develop housing elsewhere in the city. Such incentives shall include consideration of visitor-serving uses in Medium Density Residential or Higher Density Residential where a project provides affordable housing or an appropriate payment of an in lieu fee.

Events, such as concerts in the park, support the economy while strengthening the local social fabric.

topic area
2 SUSTAINABLE TOURISM

Policies

ES2.1 Support the development of responsible, visitor-serving components to the City's economy as a valuable source of jobs, tax revenues, and cultural amenities. Promote policies that facilitate and encourage this type of sustainable economic development.

ES2.2 Encourage visitor-serving uses oriented toward an upscale market, consistent with the Valley's reputation as a producer of world-class wines. Discourage the introduction of uses that are dependent upon a mass tourist market.

ES2.3 Ensure a diverse mix of uses that avoids an over-representation of any particular use. Remove the cap on the number of hotel and motel rooms and restaurant seats but continue to limit vacation rentals.

ES2.4 Encourage green transportation options to circulate people throughout the community. Promote sustainable modes of travel and reduce the number and length of vehicle trips generated by visitors to the community.

ES2.5 Encourage socially and environmentally responsible businesses that make positive contributions to the community and operate in an environmentally-sound manner.

ES2.6 Expand lodging in the downtown area to encourage walking, biking, and alternative transportation modes in order to reduce the need for automobile trips.

(Also see the Circulation Element, Topic Area 4 for policies and implementing actions related to non-motorized transportation).

ES2.7 Do not legislate or restrict the number of restaurant seats, but continue to prohibit formula restaurants.

Visitor-serving businesses bolster the City's economy and bring jobs, tax revenues and cultural amenities.

topic area
2 SUSTAINABLE TOURISM

Implementing Actions

ES2.A Continue to prohibit formula restaurants, chain discount stores, and time-share lodging projects (excluding Fractional Ownership Lodging). Consider destination membership clubs and other potential lodging options that contribute to the Transient Occupancy Tax (TOT) revenue stream subject to a conditional use permit.

ES2.B Study and recommend guidelines for permitting lodging uses in a range of land use designations, and ensure that the requested uses will not result in significant adverse impacts to the community while recognizing that the hotel taxes provide a valuable source of revenue for the City. Remove the cap on the number of hotel and motel rooms.

ES2.C Provide and maintain public restrooms in the Central Business District.

topic area
3 CITY GOVERNMENT

Policies

ES3.1 Establish and maintain an Economic Sustainability Strategy as well as related and necessary tools including, but not limited to, a short- and long-term economic, quality of life, and environmental forecasting model.

ES3.2 Establish and strengthen the reputation of St. Helena's City Government as customer service-oriented and as being business friendly.

ES3.3 Ensure clarity, transparency, and efficiency in local regulations, permitting processes, and fee structures.

ES3.4 Encourage partnerships between the City and private and nonprofit organizations to promote economic sustainability in St. Helena.

ES3.5 Support cultural diversity through economic sustainability initiatives.

topic area
3 CITY GOVERNMENT

Implementing Actions

ES3.A Continue Planning Department technical assistance for new projects.

ES3.B Develop a revised design review and/or form-based code process for commercial and industrial uses that establish objective design guidelines and restrictions.

(Also see the following elements: Community Design, Topic Areas: 2 and Land Use and Growth Management, Topic Area 3)

ES3.C Explore hiring or retaining economic development planning expertise to assist in creating and maintaining an Economic Sustainability Strategy and associated and necessary tools. Partner with the local business community to ensure that the program effectively meets participants' needs.

ES3.D Facilitate and fast track projects generating significant City revenue that will not adversely impact the City's resources and are consistent with the General Plan, Municipal Code, and CEQA.

ES3.E Encourage partnerships between the City and private and/or nonprofit organizations to enhance the City's economic sustainability.

ES3.F Consider leveraging City resources as feasible to enhance the City's economic sustainability.

Partnerships between the City and private and nonprofit organizations can promote economic sustainability.

chapter four

public facilities and services

4 public facilities and services

Public services that support St. Helena residents include water, sewer, storm drainage, solid waste collection, schools and libraries.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

4.1 Purpose of the Element

The Public Facilities and Services Element presents a framework for the City to provide services, amenities, and infrastructure for today's residents and businesses, as well as future generations. The policies and implementing actions aim to improve community services facilities, physical infrastructure, and a range of public utilities and services to best meet St. Helena's needs.

The Public Facilities and Services Element includes the following sections.

- **4.2 Public Facilities and Services in St. Helena**. Summarizes public facilities and services provided by the City of St. Helena (p. 4-3).
- **4.3 Key Findings**. Identifies key findings based on an existing conditions analysis (p. 4-18).
- **4.4 Goals**. Defines overarching goals to guide policies and implementing actions (p. 4-22).
- **4.5 Policies and Implementing Actions**. Identifies policies and implementing actions to provide services and maintain the City's physical infrastructure (p. 4-23).

4.2 Public Facilities and Services in St. Helena

From water supply and flood management to K-12 education, the City of St. Helena and its partners manage an array of public facilities and provide numerous services to support City residents and businesses, as well as neighboring communities. This network of facilities, services, and infrastructure is essential to support the City's quality of life and its ability to accommodate any potential future growth. As California explores solutions to its water supply shortages, the reduced capacity of its landfills, and limited resources to provide quality education and community services for all residents, St. Helena and local jurisdictions throughout the state are faced with many challenges. This section summarizes the key issues in public facilities and services for St. Helena.

WATER

Water Supply

The City has three sources of potable water: Bell Canyon Reservoir, water purchased from the City of Napa, and groundwater. The City extracts potable water from two groundwater wells at its Stonebridge Well Complex located near the Napa River, south of Pope Street. The City also has two sources of non-potable water: Lower Reservoir on York Creek and a groundwater well just north of the access to the Pope Street Bridge. The non-potable water is used almost exclusively for irrigation. The City also owns a capped well on its Adams Street property. This well is a potential future source of groundwater and potentially, if treated, of potable water.

Bell Canyon Reservoir is the City's primary source of potable water, and the City has the right to divert and store 3,800 acre-feet (AF) at Bell Canyon, although the available physical storage is significantly less than that amount. Bell Canyon is an on-stream reservoir with a physical storage capacity of approximately 1,800 AF. This amount of water is physically available only when all hydrologic and hydraulic conditions are optimal for surface water diversions. In some years, lower amounts will be available due to low rainfall or rainfall occurring

Bell Canyon Reservoir is the City's primary water supply source.

more episodically than continuously. Further, the amount that operationally can be withdrawn from storage in any year is less than the amount in true storage due to the need to carry significant storage over from one year to the next to augment total supply in dry years. At the same time, planned infrastructure improvements at Bell Canyon, including electronic equipment and related improvements that permit accurate monitoring of inflows and outflows in real time, could enhance the annual yield from the reservoir.

Water from Bell Canyon Reservoir is treated at the Louis Stralla Treatment Plant, located near the reservoir. The plant has a treatment capacity of 4.3 million gallons per day (mgd). The plant typically operates at 3.5 mgd, less than peak demand.

Lower Reservoir is an off-stream reservoir with a physical capacity of between 200 and 225 AF. The City has a pre-1913 claim to store up to 160 AF in this reservoir. However, the City has no facility to treat water from Lower Reservoir. About 50 AF per year from the reservoir has been used for irrigation by Spring Mountain Winery and by RLS Middle School. The City has also supplied Lower Reservoir water to local contractors for construction purposes.

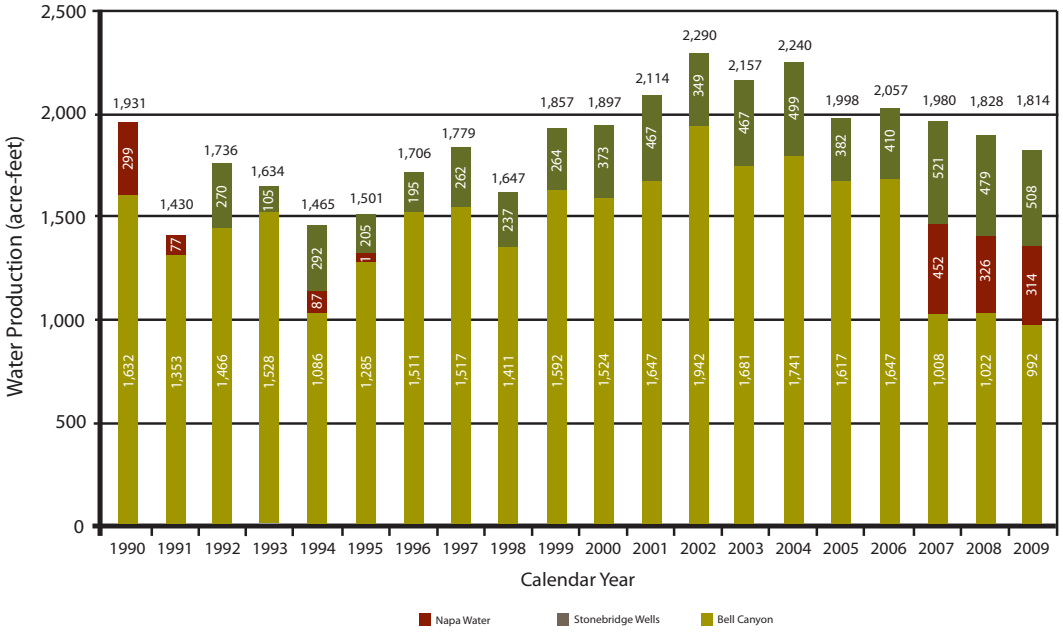
The City treats water produced at its two groundwater wells at the Stonebridge Well Complex (Stonebridge Wells Nos. 1 & 2) at a small treatment plant near the wells. These wells are located near the Napa River, south of Pope Street. The City typically operates both wells at the same time. A third well, also near the Napa River but just north of Pope Street, provides untreated water that is used for irrigation in nearby areas, including Jacob Meily Park. The City routinely monitors the elevation of the aquifer in the area of the City wells. The spring and fall elevation levels have declined since Stonebridge Well No. 1 went into production in 1992. While the decline is disconcerting, the City is not able to assess the long-term significance without further study.

The City also purchases significant water quantities from the City of Napa, having entered into a long-term water supply agreement for that purpose in September 2006. The delivery terms were materially revised in April 2009 (Amendment No. 1) and in November 2011 (Amendment No. 2). The initial term of the contract expires on December 31, 2035. Under the revised delivery terms, through the year 2035, Napa is required to deliver 600 AF of water per year to the City of St. Helena and the City is required to take and pay for 600 AF each year. The City has the option to purchase additional water from Napa (above the 600 AF) if Napa has the water to sell.

Water purchased from the City of Napa is much more expensive than water produced by the City from Bell Canyon or the City Wells. In 2012, the annual cost of 600 AF was approximately $1.2 million. The price escalates at the rate of 3 percent per year (subject to some potential adjustment). At the same time, the reliability of Napa water (as Napa must deliver 600 AF in all years) provides much needed assurance that the City will receive significant water in drought years when relying mainly on water from Bell Canyon could be problematic and groundwater production would not otherwise be sufficient to avoid a serious or even extreme water shortage.

As can be observed in Figure 4.1, the annual yield from Bell Canyon in recent years is significantly less than in prior years. Primarily because more water has flowed through to the Napa River to support fish. Most recently, Napa water has become an increasing percentage of St. Helena's total supply, as increased deliveries under the Napa contract are impacting the total mix. The City is also seeking to reduce its withdrawal of groundwater in non-drought years, in order to give the aquifers in the area of the Stonebridge Well Complex an opportunity to recharge.

FIGURE 4.1: St. Helena Historical Annual Water Production



Distribution System

The existing distribution area covers a large area inside and outside of the city limits. The network extends from Lodi Lane, two miles north of the city, to Niebaum Lane, in the unincorporated community of Rutherford, three miles south of the city.

In 2015 the City provided water to service to approximately 2,312 connections. Of those, 348 connections are located outside the City's jurisdictional boundary. Figure 4.2 shows the distribution of customers on the City's water system. All 18 industrial customers are, with one exception, wineries. "Other" water consumers include institutional users, such as churches and schools. Customers outside city limits include residential, commercial, and industrial customers.

Like all water suppliers, the City has had some "unaccounted-for water loss." Unaccounted-for water loss is the difference between the metered quantity of water produced or purchased by the City and the metered quantity of water sold to all City customers. Unaccounted-for water is therefore not available for sale ("unavailable water").

Unavailable water is attributed to unmetered water lost due to leaks, unauthorized use, firefighting (including flushing of hydrants), system maintenance, and inaccurate meters. As the City has completed replacement of customer meters, and has also undertaken significant meter improvements at the Louis Stralla Treatment Plant, the City believes that most unavailable water is occurring under the streets in its aging distribution system. This is a difficult, expensive, and long-term issue to resolve. The City recognizes that it must maintain unaccounted-for water loss at an acceptable level in its municipal systems.

Water Demand

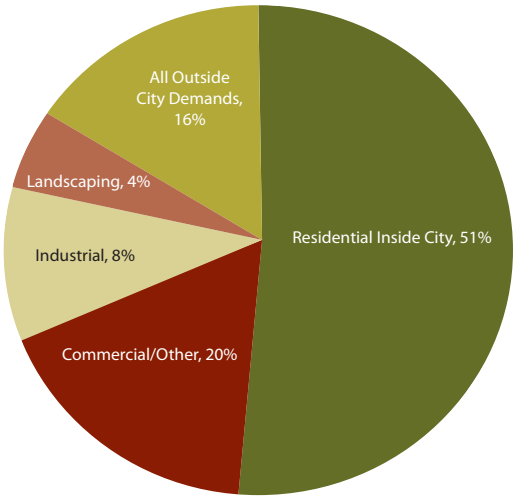
Total existing metered potable water demand averaged about 1,900 acre-feet per year between 2000 and 2015 and has declined in recent years due to improved water use efficiency and short-term demand reductions. Meaningful savings have been observed in residential water consumption (which is also the largest category of user, as seen on Figure 4.2). General commercial and

industrial (winery) usage, when added together, have also significantly declined in recent years, including in low rainfall years. For land uses outside the city limits, metered potable water demand averaged 142 acre-feet per year based on average water demand for 2002-2008.

The Safe Annual Yield of the Water System

Experience has showed that the City has inadequate water to supply customer demand without imposition of water emergency restrictions in recent years, which has led to the establishment of a "Safe Annual Yield" of the Water System. Often "safe yield" is thought of as that supply that can be reliably delivered under worst-case (drought) conditions. However, it was also apparent that under such an approach, the demand on the City's water system, even at the reduced levels of recent years, exceeded the "safe annual yield," if so defined. Such an inflexible approach was viewed as too restrictive for planning purposes.

FIGURE 4.2: Metered Potable Water Demands 2002-2008, Percent Distribution



In consequence, the City undertook to establish its own definition of "safe annual yield," as follows: "The safe annual yield of the St. Helena water supply system is that quantity of water which can be reliably delivered on an annual basis through most rainfall years, including a Dry Year (rainfall at 22" to 25.9"), without undue hardship on water customers through water shortage restrictions." The City defined "undue hardship" as "three or more consecutive months of Phase II water restrictions or Phase III water restrictions." The water restriction phases are those as stated in a water emergency ordinance adopted by the City in the fall of 2011. It is recognized that the annual safe yield, as so defined, could place significant hardship on water customers in a Critically Dry Year (rainfall at 21.9" or less) or in periods of two or more consecutive Dry Years.

The calculation of safe yield is made according to the above definition using an estimate of water available from the City's three sources under current operating conditions and under the rainfall conditions included in the definition. It is assumed that groundwater withdrawals will not exceed 450 AF in normal years (ideally withdrawals should be significantly less than 450 AF). It assumes that the City will purchase 600 AF each year from the City of Napa, in accordance with its contractual commitment, as described above. It takes into account the storage and bypass requirements that the City must follow at Bell Canyon. On the demand side, the estimated demand equals total water actually supplied (including unavailable water) averaged over the past five years. A five-year average seeks to even out anomalies that can impact yearly demand, especially due to wide variations in rainfall that can occur from year-to-year. The City recognizes that it might need to adjust the inputs into the safe yield calculation based on new information. For example, the annual safe yield would increase if the City were to acquire a significant new source of water supply. The annual safe yield could decrease if the City finds that it cannot sustainably withdraw water from the City production wells at current levels.

Based on water supplies available in 2013, the City estimated that the safe annual yield of its water system is 1,950 AF. With average five-year demand (which must include unavailable water) less than the annual safe yield in 2013, the City calculated that its water surplus was 80 AF. Citywide demand has shown a declining trend since 2002, mainly due to the decline in residential water demand.

York Creek is approximately 7.2 miles long and its watershed collects runoff.

Water Shortage Emergencies

In 2011, the City adopted a Water Shortage Emergency Ordinance, which incorporated the definition of annual safe yield, and requires a yearly calculation of the annual safe yield. If the City's water balance pursuant to the safe yield calculation is in deficit, then the City must comply with Phase I water restrictions. Most importantly, this requires that any new water demand, such as from a new project, must be completely offset by a reduction in current water demand, to the satisfaction of the Director of Public Works. Phases II and III involve the imposition of mandatory water restrictions on customers. If Phase II appears imminent, the City Council must appoint a Water Board which, if Phase II is implemented, will work with the Director of Public Works to ensure compliance by all sectors (residential, commercial, and industrial) with Phase II restrictions. Phase III restrictions are severe.

Water Supplies

The City needs to obtain new water supplies and/or achieve more water savings, even under current conditions in order to reliably meet the current and future water demand. At the same time, the City recognizes that any new water supply, even if forthcoming, is likely to be expensive, potentially increasing the unit cost of potable water. Thus, the main emphasis going forward will be on conservation, seeking to reduce demand by all classes of users.

Water Recycling Potential

The City recognizes the imperative to recycle water and the value of putting recycled water to beneficial use. The demand for recycled water is likely to be highest during the driest months when flows into the City's sewage treatment plant are at their lowest. This means that, under current conditions, recycled water could not be a meaningful factor in augmenting supply for non-potable use without the addition of substantial storage capacity. It would be necessary to provide recycled storage, pumping, and distribution facilities that includes, at minimum, 400 AF of storage. The City does not own land at a location suitable for such storage capacity, and at this time the cost of purchasing land and constructing such storage, a large capital cost, would not be fiscally justifiable to the water system's rate payers.

CONCEPTS, TRENDS AND IDEAS

Green Infrastructure

By imitating natural hydrologic processes, "green infrastructure" helps to manage stormwater and improve overall watershed health.

Interconnected networks of natural environments, open spaces and landscaped areas provide essential services and livable qualities for our communities. By mimicking natural hydrologic processes in these areas, "green infrastructure" is an integrated set of strategies and improvements that can help to manage stormwater and improve overall watershed health, reducing the need for costly enhancements to built infrastructure. Green infrastructure approaches include vegetated swales, green roofs, rain gardens, daylit creeks, preserved and undeveloped spaces, permeable paving, and the incorporation of other features into community and street design. These improvements can substantially help to manage stormwater runoff, improve water infiltration, reduce flows and improve water quality.

By incorporating green infrastructure into the City's existing built and natural landscapes, St. Helena can simultaneously improve the efficiency of stormwater management, reduce flood risks, enhance the City's design character and protect natural communities and wildlife. Importantly, green infrastructure can also significantly reduce demand on the City's stormwater drainage system, minimizing the need to construct expensive pipe systems.

SEWER

Collection System

The City provides sewer service to approximately 1,726 connections, of which 75 percent are residential. All sewer connections are located within city boundaries, with no out-of-agency boundary sewer services provided. About 300 dwelling units and three wineries are on individual disposal systems, most of them too remote to reach the City's sewer system. With the exception of the original town site, which has four-inch sewer lines, most of the City is served by pipes adequately-sized for dry weather flows. During the winter rainy season, surface and ground water infiltration increases flows by eight times. In several areas of the city, the sewer system suffers from defects which prevent free flow of sewage, resulting in backwater in the system. One lift station exists at the Crinella development in the northeast quadrant east of Main Street. The remaining system operates by gravity.

Treatment Plant

The wastewater treatment plant (WWTP), including its integrated pond system, is located in the southeast corner of the city, near the Napa River. There are a series of ponds that treat the effluent to a secondary level, and the treated effluent is then sprayed onto a field owned by the City just south of the ponds. While the City's permit allowed for discharge into the Napa River under very limited conditions, the City seeks to minimize discharges directly into the river.

In the past, wastewater discharges to the Napa River have exceeded the established limits for biochemical oxygen demand (BOD) and total suspended solids. Constructed in the 1960's, the WWTP is required to meet new wastewater treatment standards set forth by the Regional Water Quality Control Board (RWQCB), which mandate additional treatment of wastewater in order to meet stricter environmental requirements. Under a Cease and Desist Order from the RWQCB, the City is required to phase in the improvements to the wastewater treatment plant by 2021. As part of the project, the city will evaluate the options for improving the facility in order to meet the new requirements.

Working with City Council and sewer service ratepayers in St. Helena, the City will determine a strategy to meet the new requirements, develop the required design and engineering documents, and construct the needed improvements.

Storm Drainage

The City is divided into two major subwatersheds, York Creek and Sulphur Creek. Both watersheds drain into the Napa River watershed. The following section provides an overview of the two major components of the City's drainage system.

For additional discussion of flood potential in St. Helena and for policies to reduce flood incidence and minimize flood impacts, see the Public Health, Safety, and Noise Element.

York Creek Subwatershed

The approximately 7.2-mile-long York Creek has a 4.4-square-mile subwatershed that includes the Upper and Lower York Creek reservoirs. Runoff north of Pratt Avenue is conveyed to York Creek through a number of culverts and ditches, then into the Napa River north of the Pratt Avenue Bridge. Built at approximate Stream Mile 2.5, the Upper York Creek Dam (UYCD) stretches 140 feet across the channel and stands 50 feet high. The UYCD was built in 1900 to supply water to the City. Operations were halted in the 1980s due to acquisition of other water sources and ongoing issues with sedimentation. Water is no longer stored at UYCD, and the City is actively working on a project to remove the dam and restore the creek in this area.

(See Open Space and Conservation Element).

The City has five public schools including the St. Helena Elementary School.

Sulphur Creek Subwatershed

The Sulphur Creek subwatershed area is 9.3 square miles. Sulphur Creek's one major tributary, Heath Canyon Creek, joins the main stem of Sulphur Creek immediately before it exits Sulphur Canyon and begins to flow across the Valley. Heath Canyon and Sulphur Creek have a combined channel length of approximately 12.7 miles. The lower 1.5 miles of Sulphur Creek flow through the City of St. Helena. Sulphur Creek then flows into the city from the west along Sulphur Springs Road, and then runs east to its confluence with the Napa River, near the Pope Street Bridge. The lower reach of Sulphur Creek is referred to as the historic gravel mining reach due to the historic gravel mining activities that occurred and the resulting, extensive gravel deposition in the area. The main stem of Sulphur Creek has seven major road crossings comprised of bridges and box culverts. Most of these major crossings are large enough to handle flood flow, but many smaller crossings and culverts on the tributaries have been identified as undersized. Channel modifications, including both on- and off-stream reservoirs, also alter flow patterns in the Sulphur Creek watershed.

Existing on- and off-stream reservoirs intercept and retain storm flows, acting to reduce the peak of the hydrograph and flooding. However, several of these reservoirs have inadequate overflow mitigation (i.e. spillways) and have the potential to cause severe erosion.

Solid Waste

The Upper Valley Disposal Service provides solid waste services to all residents and businesses in the City of St. Helena. The Upper Valley Disposal Service provides an extensive recycling program and a variety of waste reduction programs. A single stream recycling program accommodates a wide array of wastes including plastic, glass, steel, tin, aluminum, and most types of paper and cardboard. The Agency also conducts public education to teach residents and businesses about composting and its recycling and electronic waste disposal programs.

Solid waste is disposed of in the Clover Flat Landfill, located on the Silverado Trail north of St. Helena. The landfill has a permitted capacity of 4.90 million cubic yards. As of 2018, the landfill has a remaining capacity of approximately 2.62 million cubic yards. The landfill has 10 years remaining on its existing franchise agreement with Napa County, but has an estimated capacity to last approximately 30 years and is expected to close in 2047.

SCHOOLS AND PUBLIC LIBRARY

The St. Helena Unified School District maintains four schools: a primary school, an elementary school, a middle school, and a high school that serve approximately 1,200 students in grades K–12. According to the District's 2010 Facilities Master Plan, St. Helena's public schools have a maximum capacity of approximately 1,770 K-12 students. Coupled with a decreasing trend in enrollment in recent years, the District anticipates adequate capacity to accommodate projected enrollment in the near-term. There are also four private schools in the city, as well as a public preschool (Little Backpacks Preschool) and a public college (Napa Valley College).

The George and Elsie Wood Public Library is the City's single public library. The library is home to approximately 96,000 books, videos, albums, newspapers,

magazines, and other media. The library also contains the Napa Valley Wine Library collection, which consists of 3,500 titles regarding viticulture, enology, and other wine-related literature. The Robert Louis Stevenson Museum is also located on the Library site. In addition to public funds, the library is sustained by the active fundraising efforts of the Friends of the St. Helena Library, a "library foundation" group that has subsidized programming enhancements and a major library expansion. Continued City support can ensure that the library remains an innovative, cultural center serving all St. Helenans.

FIRE PROTECTION SERVICES

The City of St. Helena Fire Department provides fire protection services within the City limits and certain surrounding unincorporated areas, pursuant to a mutual aid agreement between the City and the County of Napa. This agreement dictates, depending on the needs of the incident, that all fire departments in the county will respond to a call for services as requested or required. Napa County Station 26 (St. Helena) and Napa County Station 12 (Yountville) provide automatic aid on all residential and commercial structure fires in the City of St. Helena. Services provided by the Fire Department include fire suppression, fire prevention, education, emergency medical and rescue services, and response to incidents involving hazardous materials.

The Fire Department is based at 1480 Main Street in St. Helena. As a part time department, firefighters respond to the station when they receive a page, leaving the station unoccupied throughout the day. The firefighters are trained to provide emergency medical services at various levels. The Fire Department responds simultaneously with the ambulance dispatch, and generally arrives on scene concurrently with the ambulance company. The department has set a goal for a maximum response time of 8 minutes within the St. Helena city limits. The majority of calls received by the Fire Department are for emergency medical services.

POLICE SERVICES

The Police Department is based at 1480 Main Street in St. Helena. The St. Helena Police Department provides police services within the city limits. The Police Department maintains 24-hour security patrol throughout the community. In addition to calls within the City of St. Helena, the Police Department responds to incidents in surrounding unincorporated areas based on separate mutual aid agreements with California Highway Patrol, the Calistoga Police Department, and the County of Napa.

The Police Department goal is to maintain a staffing ratio of two police officers for every 1,000 residents. The Police Department's goal is to maintain an average response time of three minutes or less. In recent years, the number of calls for service has increased, resulting in an increase in response time.

Clover Flat Landfill supports recycling and has a capacity of 5.1 million cubic yards.

4.3 Key Findings

There are several challenges and opportunities facing St. Helena related to public facilities and services. The following key findings are based upon comprehensive existing conditions analysis and community input.

Water

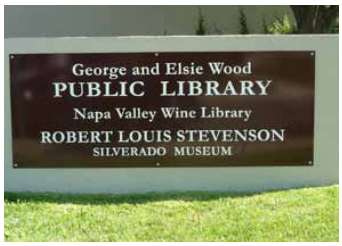
- It is imperative that the City continue to search for new sources of water, noting that groundwater is not considered a "new" source of water. However, until such sources are identified and acquired, the City must plan on its current sources of water as its only sources into the indefinite future.
- The City owns and operates two reservoirs, six storage tanks, pumps, four pump stations, and a network of distribution pipelines. Infrastructure is located within the City limit, SOI and the study areas. In 2015, St. Helena provided water service to approximately 2,312 connections, of which 348 were located outside the City's jurisdictional boundary.
- The installation of new electronic monitoring equipment and associated infrastructure improvements at Bell Canyon to better monitor Bell Canyon inflows, outflows, and water levels more accurately and in real time would be

valuable to the City's water utility. Such real time measurement might lead to increased yields from Bell Canyon, as it will enable the City more accurately to manage the reservoir, including fulfillment of its obligation to flow water through to the Napa River, as required by its permits.

- To date, the City has not implemented its recycled water program due to logistical and financial constraints. Key issues include inadequacies in the City's distribution system that limit options to return water to users and insufficient demand to use greywater for irrigation purposes, particularly among wineries. Removing logistical and financial constraints can help the City keep the program moving forward until additional funding becomes available to fully upgrade the treatment plant and distribution system.
- Residential, commercial, and industrial customers have made great strides in recent years in reducing their water usage. It appears that residential consumption is St. Helena is consistent with other Napa communities after taking into account housing mix and lot sizes.
- Future climate change could alter regional rainfall and significantly impact the City's water resources. The City should maintain awareness of evolving climate science assessments as they pertain to the Napa Valley and take those considerations into account in its ongoing water management planning.

Wastewater

- The City of St. Helena Wastewater Treatment Plant is operates under permits from the California Regional Water Quality Control Board. The most recent new permit was issued on January 12, 2016. The permitted capacity is the average dry weather flow which shall not exceed 0.65 million gallons a day. The actual average dry weather discharge rate shall be determined for compliance over three consecutive dry weather months each year. Under the new permit and related order, the City is required to meet more stringent discharge limitations. This may require significant improvements to the wastewater treatment facility.
- Portions of the Wastewater Treatment Plant are located within the 100-year floodplain, which can cause stormwater flows to infiltrate the City's wastewater collection system during the rainy season. Reducing inflow and infiltration into the wastewater collection and treatment system can reduce the frequency of overloads and increase the effectiveness of the City's facilities.



The George and Elsie Wood Public Library contains approximately 96,000 books, videos, albums, newspapers, magazines and other media

In 1986 and 1995, floodwater overtopped the Napa River bank and caused significant damage to neighborhoods in the City of St Helena, prompting the City to take action which led to the development of the Comprehensive Flood Mitigation Project (Project). The final Project plan, approved in 2006, provides flood risk reduction for a 100-year flood event along with riparian environmental benefits. The Project's main components include a floodplain terrace, a new levee and floodwall, a storm water detention basin, pump station, and a site adaptive management plan. After completing design and permitting between 2006 and 2008, construction began in 2009. Construction of the Project was completed in April 2011, after which the City submitted an application to FEMA for accreditation of the new flood mitigation features. FEMA's approval was received in June 2012 through a Letter of Map Revision reflecting the areas brought under flood mitigation by the project. The Project removed over 200 residential units from the floodplain.

- New development often results in an increase in impervious surface areas and a decrease in natural vegetation, which in turn can result in increased stormwater runoff. Stormwater runoff can cause nonpoint source pollution in streams and rivers.
- St. Helena's Stormwater Master Plan is approximately 10 years old and some of the collection lines detailed in the plan have not yet been constructed. Currently, the City addresses stormwater runoff concerns on a case-by-case basis. Updating the City's Stormwater Master Plan can help streamline the permitting and approval process and renew recommendations to reflect changes since the adoption of the last plan.
- The City maintains a network of more than 22 miles of pipe and trunk lines that collect sewage from homes and businesses, and currently provides sewer service to approximately 1,726 connections, of which 75 percent are residential. All sewer connections are located within city boundaries, with no out-of-agency boundary sewer services provided.

Schools, Library, Fire, and Police

- In recent years nearly a third of St. Helena Unified School District students were classified as English Learners, with nearly all of these students listed as Spanish-speakers. Strengthening existing relationships with the school district can help the City effectively target services to Spanish speaking communities and has been effectively accomplished by the St. Helena library.

The York Creek and Sulphur Creek watersheds drain into the Napa River.

- Strengthening existing relationships with the school district can help the City effectively target services to lower-income families, such as those whose students receive free or reduced-price meals.
- Collaboration with the St. Helena Unified School District presents an opportunity to enhance after-school programming and social service delivery, as well as enable schools to function as neighborhood centers for a variety of intergenerational and community events.
- St. Helena's library consistently ranks as one of the top public libraries in the state and offers a wide variety of services for residents of all ages. In addition to its regular collection, the library houses the papers of the St. Helena Historical Society and the Napa Valley Wine Library Association and the Robert Louis Stevenson Museum. Per capita, the St. Helena Public Library enjoys the highest circulation and percentage of cardholders in the state.
- The St. Helena Fire and Police departments, as part of a mutual aid agreement between the City and Napa County, provides emergency response services to residents and businesses adjacent unincorporated Napa County communities outside of the City limits. Therefore, growth in these communities, as well as maintenance of infrastructure, impacts staffing and equipment needs, as well as response times for the City of St. Helena.

4.4 Goals

The goals of the Public Facilities and Services Element are:

Ensure High-Quality Public Services and Facilities.

St. Helena is committed to investing in and maintaining a high standard of quality for facilities and infrastructure to serve a diverse range of community needs.

Promote Sustainable Standards and Practices.

St. Helena is dedicated to upgrading existing community facilities and infrastructure where possible and setting standards for new improvements that support long-term ecological sustainability and environmental mitigation.

topic area
1 WATER

4.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Water;
2. Sewer;
3. Storm Drainage/Flooding;
4. Solid Waste; and
5. Schools, Libraries, Fire, and Police.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

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topic area
1 WATER

Policies

PF1.1 Require that the approval of new development be contingent upon the ability of the City to provide water without exceeding the safe annual yield of its water supply system.

PF1.2 Adopt and implement equitable water conservation measures for both residential and non-residential users so that the City can supply water within the safe yield of its water system.

PF1.3 Prohibit water service to new customers outside the city limits unless a potential threat to health and safety can be demonstrated.

PF1.4 Proactively reduce the City's commitment to provide water to uses outside the city limits.

PF1.5 Continue to implement and update as necessary the City's Water Management Plan Ordinance and the City's Ordinance containing the Water Use Efficiency Guidelines, along with other existing water conservation ordinances and measures.

PF1.6 Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock through the City existing Ordinances and Water Conservation Plans.

Implementing Actions

PF1.A Continue to implement the City's water conservation ordinances and programs that act to reduce per capita water consumption. In addition, consider incentives to property owners to install rainwater collection barrels and continue to require water efficient irrigation systems and drought tolerant landscaping.

PF1.B Implement the following water system improvements:

- Replace obsolete, undersized water mains to provide more efficient circulation, higher pressures, and lower pipe losses during heavy demand periods.

- Continue service of water mains to reduce unaccounted-for water losses.

PF1.C Continue to aggressively look for new water supply sources adequate to serve St. Helena's population into the future. New sources may include adoption of new technologies, such as effective water recycling.

PF1.D The City of St. Helena should not draw or sell any groundwater beyond that currently allowed until a safe yield of the groundwater system has been identified through a study of the North Main Basin Aquifer by a qualified hydro geologist.

PF1.E Permit no new development relying on groundwater unless and until it is determined that the incremental production of ground water to support the development will not adversely impact the water production capability of the aquifer supporting the City wells.

PF1.F Track the drilling of new private wells in and around St. Helena and, if so recommended by the qualified hydrologist hired by the City's water system, request that the County impose a moratorium on new well drilling if needed to protect the production capability of the City wells.

PF1.G If feasible, adopt a Water Conservation Program that includes the following actions:

- Utilize a Water Conservation staff member or consultant, as needed;
- Update the new construction offset program;
- Establish an Irrigation Advisory Service and promote "Smart Irrigation Controllers";
- Adopt new requirements for "ultra-efficient" plumbing fixtures for new development and rebates for existing users;
- Reduce average dry weather flow; and
- Evaluate incentives for replacement of turf and rainwater catchment, etc.

topic area
1 WATER

PF1.H Ensure that water rates are designed to promote conservation, as well as to ensure that needed capital improvements are made in a timely manner.

PF1.I Evaluate and adjust as needed "water shortage emergency" phases, recognizing the complexity of the supply system and making use of modeling of historical and future performance.

PF1.J Develop and adopt regulations to ensure that total potable water usage is not greater than 1,950 acre-feet per year unless the project includes housing affordable to lower income households and a determination is made pursuant to Government Code 65589.7 that a "sufficient water supply" is available to serve that project and none of the exceptions set forth in 66589.7 (c) apply; or, new sources of water are made available to the City. Residential projects that contain affordable housing shall receive priority allocation of water.

PF1.K Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock.

PF1.L Require that all new residential housing projects incorporate "best practices" for minimizing water usage.

PF1.M Limit any future non-residential development to projects that incorporate "best practices" for water conservation.

topic area
1 WATER

PF1.N Institute an ongoing process of mandatory audits of all existing non-residential water users to promote adoption of "best practices" for water conservation.

PF1.O Provide the full-time capability in the City to implement and oversee water conservation policies and to pay for this capability out of water revenues rather than the General Fund.

PF1.P Collaborate with Napa County (GRAC study) by participating to establish in the ongoing monitoring program to assess the long-term viability and recharge capability of the North Main Basin aquifer that supplies the City's wells.

PF1.Q The City of St. Helena at the earliest opportunity shall work with the City of Napa to extend that Napa water supply contract beyond the expiration of its term at the end of 2035.

PF1.R Maintain awareness of long-term risks to the City water supply, including potential climate change impacts, impacts on groundwater resources, uncertainties about the Napa water contract renewal in 2035, and Napa water delivery reliability due to impacts on the State Water Project from drought, singlepipe delivery system risks, large storms, or earthquakes. Allocate any surplus water resources among new uses and unallocated reserves to maintain a balance between short-term needs and long-term risk mitigation.

PF1.S Provide for capital needs of water and wastewater systems.

Storm drainage improvements can include measures such as creating settling basins, bio-swales and the use of pervious materials for driveways and parking areas.

topic area
2 SEWER

Policies

PF2.1 Ensure adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth, taking into account the City's Growth Management System, the Regional Housing Needs Allocation, and the needs of non-residential users.

PF2.2 Require the extension of the City sewer to areas that are dependent upon septic systems prior to approval of future growth in these areas.

PF2.3 Reduce pumping costs and increase plant capacity by mitigating sewer system infiltration problems and explore alternate energy sources.

PF2.4 Increase sewer collection system efficiency by ensuring proper maintenance of sewer pipes.

topic area
2 SEWER

Implementing Actions

PF2.A Require all new units on parcels less than two acres, except those in the Woodlands and Watershed District, to connect to the City sewer. All existing units within 200 feet of an existing sewer shall connect to the City sewer whenever feasible. Many of the residential units cannot expand without abandoning on-site septic systems and connecting to the sewer which may, in some cases, require an extension of the sewer.

PF2.B Continue wastewater treatment system upgrades to reduce the number and scale of implementation constraints on the recycled water program. This can ensure that the system is ready for investment when funding for implementation becomes available.

PF2.C Urban services such as sewer, water, and storm drainage will only be extended to development within the Urban Limit Line. Exceptions will be permitted when undue hardship can be demonstrated and when proposed improvements are not found to induce growth.

PF2.D Reduce sewer system inflow and infiltration through repair and replacement of sewer pipes and protection from inflow sources.

PF2.E Reduce pumping costs and increase plant capacity by mitigating sewer system infiltration problems and exploring alternate energy to operate the wastewater treatment plant to reduce operational costs.

A Safe Routes to School Program will improve walking and bicycling access to schools and after-school programs.

topic area
3 STORM DRAINAGE/FLOODING

Policies

PF3.1 Ensure that new developments provide adequate drainage improvements and detention to mitigate flooding from increased stormwater runoff attributable to the development.

PF3.2 Ensure that encroachments into the 100-year floodplain do not result in any increase in flood levels during the occurrence of the base flood discharge.

PF3.3 Improve York Creek channel capacity in flood-prone areas through removal of channel-obstructing gravel bars and vegetation.

PF3.4 Consider efforts to prevent risk to structures and property along Sulphur Creek.

Implementing Actions

PF3.A Require developers to provide adequate drainage improvements and detention to mitigate storm runoff from the site to the nearest major waterway. Drainage improvements can include measures such as creating settling basins, bio-swales, and the use of pervious materials for driveways and parking areas. Key waterways include York Creek, Sulphur Creek and the Napa River.

PF3.B Continue to require that new developments contribute on a fair share basis to the extension or upsizing of storm drainage to accommodate it through the construction of infrastructure and/or the payment of Impact Fees.

topic area
3 STORM DRAINAGE/FLOODING

PF3.C Consistent with Municipal Code Section 16.32.170, continue to prohibit the creation of new residential lots that will be subject to periodic inundation from floodwaters. New development proposals on existing lots of record must identify flood hazard areas and mitigate all impacts to base flood levels and potential flood damage from grading, filling, and construction through proper drainage, construction, and location of utilities, in accordance with FEMA requirements.

PF3.D Update the City's Stormwater Master Plan to include changes and upgrades since the last plan and to help streamline the approval process.

PF3.E At the time of development review, require that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval.

(Also see Climate Change Element, Topic Area 4)

PF3.F Implement the requirements of FEMA relating to construction in Special Flood Hazards Areas as illustrated on Flood Insurance Rate Maps.

PF3.G Continue to require that new development and redevelopment projects implement Post Construction Runoff Management measures, including low impact development practices, to reduce stormwater peak flow rates and volumes from smaller, more frequently occurring storm events.

topic area
4 SOLID WASTE

Policies

PF4.1 Increase recycling and composting as part of a coordinated waste reduction and management program.

Implementing Actions

PF4.A Develop and adopt a Waste Management Master Plan to enhance existing waste management services and systems. Assess the system's capacity to serve current and future residents, recommend improvements and identify funding mechanisms and implementation partners. The plan should include landfill space plans and a food waste composting program that incorporates approaches for on-site food waste composting for residences and businesses. Update the plan regularly to address changing needs and priorities.

PF4.B Install and maintain recycling receptacles downtown and in all public parks and major streets. Ensure that the design and appearance of the receptacles fosters high-quality community design, aesthetics, and character.

topic area
5 SCHOOLS, LIBRARIES, POLICE, AND FIRE

Policies

PF5.1 Support and cooperate with the St. Helena Unified School District in maintaining high-quality education as a community priority.

PF5.2 Promote the efficient use of school facilities for before- and after-hour programs that benefit both school-age children and the community at large.

PF5.3 Ensure that children have access to safe routes to school, especially by bicycle and walking.

PF5.4 Require that the approval of residential, commercial, or industrial development be contingent upon the mitigation of the impact of such development on the St. Helena Unified School District's ability to serve school-age children.

PF5.5 Encourage continued support for the St. Helena public library and the library foundation to ensure that it maintains high-quality services for all St. Helenans.

PF5.6 Partner with the St. Helena School District and other community stakeholders to develop a "Youth and Families Master Plan" that will allow more effective collaboration, communication, and coordination in providing services support and opportunities for St Helena's youth.

PF5.7 Set a goal of a maximum fire department response time of 8 minutes within the St. Helena city limits.

PF5.8 Set a staffing ratio of 2 police officers per 1,000 population and for priority one calls, an average police department response time of 3 minutes or less.

topic area
5 SCHOOLS, LIBRARIES, POLICE, AND FIRE

Implementing Actions

PF5.A Assist the School District in collecting school facility development fees generated by new development. Partner with the District to identify, establish, and implement additional measures to ensure that the highest quality of education is provided.

PF5.B Partner with the Napa County Office of Education, the Napa Valley Transportation Authority, the St. Helena Unified School District, and private schools in St. Helena to develop and implement local safe routes to school strategies to improve walking and bicycling access to schools and after-school programs; promote bicycling and walking to benefit students' health; decrease automobile traffic near schools; and support local efforts to improve the environment. Align safe routes to school strategies with the City's bicycle and pedestrian trail systems.

PF5.C Develop a City-sponsored internship program for St. Helena Unified School District students in order to provide high-quality job skills training and support the School District's educational goals.

chapter five

circulation

5 circulation

A multimodal transportation network includes bicycles, pedestrians, transit, and automobiles.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety, and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture, and entertainment

5.1 Purpose of the Element

The Circulation Element provides the framework for a comprehensive and multimodal transportation network that supports and integrates with the other elements of the General Plan, especially the Land Use and Growth Management Element. The Circulation Element identifies the principal components of the City's circulation system, as well as issues related to parking, public transit, and pedestrian and bicycle infrastructure. Standards and guiding principles for the implementation of transportation improvements are also included.

In increasing numbers, citizens of all ages in St. Helena are interested alternatives to the automobile, including walking, biking, and moving throughout the community in golf carts and other electric non-automobile vehicles. Given the relatively flat topography of most of St. Helena, the city provides ideal conditions for such alternative modes of transportation. A shift from traditional automobile-based transportation to alternative modes of transportation within St. Helena will bring numerous benefits to the community, including but not limited to:

- Decreased automobile traffic throughout the city due to an increased number of citizens choosing to walk, or bike, or use alternative modes of travel within the city;
- Health benefits for residents of St. Helena as a result of increased use of active transportation, including walking and biking;

- Decreased air pollution due to less automobile operation throughout the city; and
- Reduced wear and tear on streets within St. Helena.

In January 2012, the City of St Helena completed and approved a citywide bicycle and multimodal plan which is integrated with the Napa County bicycle network and the Napa Vine Trail. The approved plan will provide safe and convenient bicycle, pedestrian, and multi-modal access to schools, parks, open spaces, commercial areas, residential neighborhoods, and community facilities. With this plan and vision in place, the foundation to create a safer and healthier pedestrian and bicycle environment has been established. The City is focused and committed to turning this plan into reality.

The Circulation Element includes the following sections:

- **5.2 Circulation and Mobility Framework for St. Helena**. Describes a framework for circulation and mobility (p. 5-4).
- **5.3 Key Findings.** Identifies key findings based on an existing conditions analysis (p.5-6).
- **5.4 St. Helena's Circulation and Mobility Future**. Describes St. Helena's transportation future, including the proposed street typology system and network, pedestrian and bicycle network, transportation performance measures, and transportation demand management (TDM) program (p. 5-13).
- **5.5 Goals**. Defines goals that focus the direction of changes to St. Helena's transportation infrastructure and mobility and circulation-related policies and programs (p. 5-29).
- **5.6 Policies and Implementing Actions**. Identifies policies and implementing actions to develop an efficient, multimodal transportation network that minimizes impacts to the environment and neighborhoods (p. 5-31).

Regional planning initiatives such as the Napa Countywide Pedestrian Plan and the Napa County Travel Behavior Study provide context for the circulation and mobility framework in St. Helena

5.2 Circulation and Mobility Framework for St. Helena

Transportation planning in California is undergoing a broad transformation. A changing demographic, the growing movement to combat climate change, and an increasing focus on the public health benefits of biking and walking all highlight the need to provide greater choice in local and regional travel. Multimodal transportation and the integration of land use and transportation planning, while always important, are central components of this paradigm shift which has occurred within St. Helena, as well as statewide. These concepts are widely accepted as essential to creating successful circulation and mobility improvements. As municipalities and agencies plan for change, individuals seek to minimize travel costs and learn more every day about how decreasing their reliance on the automobile can reduce their carbon footprint and improve their physical health and well-being.

As part of this paradigm-shift, mobility no longer focuses only on private automobile and public transit use. Increasingly, it is defined by how community members can use alternative modes of transportation efficiently. The size, topography, and climate of St. Helena make it an ideal city for both walking and biking. According to data from the 2012-2016 American Community Survey 5-Year Estimates for the City of St. Helena , approximately 6 percent of St. Helena residents walk to work. This is a higher rate than the countywide average of 4 percent and reflects the City's continuing efforts to create and preserve safe walking environments and a pedestrian-friendly community. At the same time, less than 2 percent of St. Helena residents travel to work by bike and less than 1 percent commute by public transit. This reality underscores the importance of continued efforts to build a comprehensive circulation network in support of multiple travel modes (see Table 5.1). Circulation, as defined in this element, promotes human-scale mobility through a network of pathways and infrastructure that does not rely solely on the expansion of automobile roadways.

Past transportation planning methods have relied heavily on a traditional street classification and performance measurement system that focuses solely on the capacity of streets to accommodate automobile traffic volume, improve

traffic speed, and reduce delay time. This narrow approach fails to consider overall mobility, the existing and desired land use character of the community or conditions for non-automobile users. To better reflect and promote the paradigm shift towards non-automobile-based transportation within St. Helena, the traditional approach to transportation planning must be expanded to address "complete streets". Efforts to improve the City's network of streets, sidewalks, and services must meet important circulation and mobility goals and also contribute to broader efforts to create safe and attractive environments for human interaction.

In support of these concepts, the General Plan recognizes the need to establish new street typologies and performance standards, while tailoring improvements and mitigation to support multiple modes of travel and enhance surrounding land uses. The Circulation Element sets forth goals, policies, and implementing actions that bolster this place-based approach and will guide decisions about improvements to the public right-of-way to best meet the community's vision and to maximize the safety of St. Helena's residents and visitors.

TABLE 5.1: Journey to Work by Mode of Travel

Mode	St. Helena		Napa County	
	2000	2016	2000	2016
Drove alone	69.2%	77.8%	72.7%	75.8%
Carpooled	13.1%	3.8%	14.8%	11.6%
Transit	1.3%	1.0%	1.4%	1.5%
Bicycle	0.3%	2.6%	0.2%	0.7%
Motorcycle	0.0%	0.0%	0.8%	0.1%
Walked	7.2%	6.2%	4.1%	4.0%
Other means	0.9%	0.0%	0.8%	0.5%
Worked at home	8.0%	8.6%	5.1%	5.8%

Source: U.S. Census Bureau; Census 2000, American Community Survey 2016 Estimates

Many neighborhoods are within walking distance of schools and the downtown.

5.3 Key Findings

There are several challenges and opportunities facing St. Helena related to circulation. The following key findings are based upon comprehensive existing conditions analysis and community input.

- St. Helena's street network has largely been developed on a grid. However, some sections of the network, particularly on the east side of State Route 29, are not connected. The lack of a complete traffic circulation system funnels the majority of local trips onto several streets, particularly when State Route 29 is heavily congested. The 1993 General Plan included plans for multiple street extensions on local roadways to accommodate future development. While a handful of projects have been implemented, most have not. Given the shift towards non-automobile-based transportation, these extensions are an opportunity to create bicycle and pedestrian connections (as well as emergency vehicular access where appropriate and beneficial) to improve non-automobile circulation throughout the city. Additionally, development of a comprehensive traffic calming program with a focus on non-automotive circulation improvements will preserve and enhance the livability of neighborhoods and address resident concerns about traffic safety, such as speeding on residential streets.
- According to U.S Census data, the mode share for bicycle and pedestrian commute trips from St. Helena decreased between 1990 and 2000 (by 1.0 percent and 1.2 percent respectively). This trend has continued to present day for pedestrians but has changed for cyclists. Based on the 2012-2016 American Community Survey 5-Year Estimates, the percentage of St. Helena residents who walk to work decreased from 8.4 percent in 2012 to 6.2 percent in 2016, while over the same time period, the numbers of those biking to work in St. Helena increased from 0.6 percent to 2.5 percent since adopting the bicycle master plan. Developing a comprehensive, safe and accessible pedestrian and bicycle network will promote non-motorized trips and reduce single-occupancy vehicle trips, as well as reflect trends in how St. Helena residents move around the city and larger Napa Valley region.
- St. Helena's senior population is expected to increase substantially by 2040. Planning for and developing a pedestrian network that accommodates the city's most vulnerable users, such as seniors, children, and individuals of

TABLE 5.2: Destinations for Weekday Trips of Residents Living in St. Helena

Origin	Destination	Number of Total Trips	Percentage of Total Trips
St. Helena	St. Helena	6,450	41%
St. Helena	Napa	1,896	12%
St. Helena	Calistoga	655	4%
St. Helena	Yountville	98	1%
St. Helena	American Canyon	125	1%
St. Helena	Remainder of Napa County	5,564	36%
St. Helena	Outside Napa County	801	5%
	Total	**2,703**	100%

Source: Napa County Travel Behavioral Study, Fehr and Peers, 2014

limited mobility, will ensure that St. Helena's streets are safe and accessible for all, in consideration of the Americans with Disabilities Act (ADA) requirements. St. Helena's senior population will increase substantially by 2030. A pedestrian network that accommodates the City's most vulnerable users, such as seniors, children and individuals of limited mobility, will ensure that St. Helena's streets are safe and accessible for all. Relevant planning initiatives include the 2010 ADA Transition Plan and the 2016 Napa Countywide Pedestrian Plan.

- Many families live within walking or biking distance of St. Helena's schools, which presents an opportunity to decrease automobile use. Safe Routes to School is a national program that improves safety and encourages students to walk and bicycle to school. Such programs work to reduce traffic congestion and improve the health of both children and the environment, and funding is available for implementation from State and federal sources.

- Several open spaces and parks located within St. Helena and in the surrounding area, including agricultural areas and the Napa Valley Vine Trail, lack well-defined and accessible connections for both pedestrians and bicyclists. Funding sources for the rehabilitation of existing sidewalks to ensure the safety of residents and visitors is also needed. Future opportunities for the development of multi-use paths with an emphasis on access, wayfinding, signage, and parking locations at trailheads will be a priority. Similarly, collaboration with other jurisdictions to expand opportunities to provide pedestrian and bicycle access throughout the Napa Valley requires focus, as these improvements have the potential to create alternative recreational and commuting opportunities for both visitors and local residents.
- In the past, St. Helena has relied solely on traditional Level of Service (LOS) standards for measuring transportation impacts from new development, which account for auto vehicle delay at intersections and along roadway segments. This approach, while effective in measuring and regulating vehicular transportation impacts, does not place any emphasis on enhancing

TABLE 5.3: Origin of Workers Traveling to St. Helena for Work

Origin	Destination	Number of Total Workers	Percentage of Total Workers
Napa	St. Helena	1,793	11%
St. Helena	St. Helena	6,450	39%
Calistoga	St. Helena	444	3%
Yountville	St. Helena	246	3%
Remainder of Napa County	St. Helena	6,841	41%
Living Elsewhere in California	St. Helena	841	5%
	Total	**16,615**	100%

Source: Napa County Travel Behavior Study, Fehr and Peers, 2014

The St. Helena Vine provides local service throughout the City.

the use of alternate modes of transportation, such as the transit, walking, and bicycling by enhancing access to those modes of transportation. This General Plan includes policies and implementation measures that rely on the use of LOS, while supporting all modes of travel when measuring and mitigating transportation impacts.

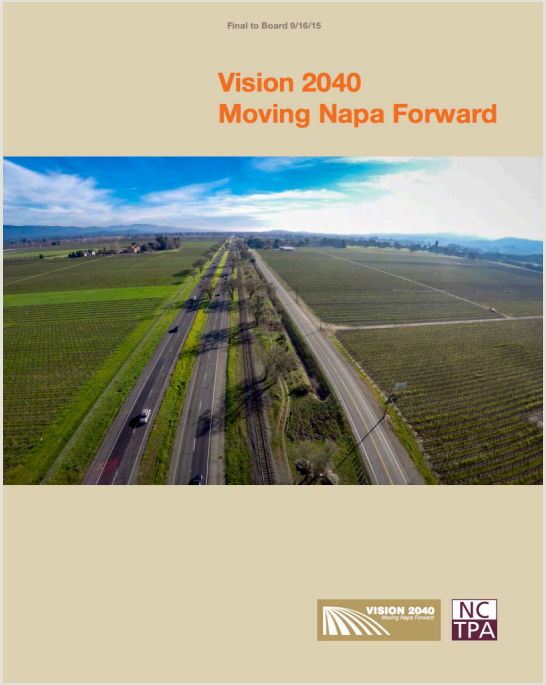
- With a statewide emphasis on shifting travel from single-occupancy vehicles to carpooling, transit use, and increasing bicycle and pedestrian trips to reduce greenhouse gas emissions and Vehicle Miles Traveled (VMT), new performance measures that recognize the priorities of a range of roadway users will be needed.
- According to U.S. Census data, more workers are commuting into St. Helena than are living within the city. This suggests a mismatch between the type of employment and residential units in St. Helena. A balanced ratio between jobs and housing can help reduce travel times and traffic congestion, as well as VMT.
- The primary transit option in the Napa Valley is the Vine bus service. Development and land use patterns in the Napa Valley have resulted in low rates of transit ridership. According to the 2012-2016 American Community Survey 5-Year Estimates, 0.9 percent of St. Helena residents commute by

transit as compared to 5.2 percent statewide. Additional funding and support for increasing bus service will enhance long-term strategies for a sustainable transportation system.

- A significant portion of Napa County's traffic congestion results from tourists traveling throughout the region. There is increasing support for tourism that places less reliance on the automobile, such as the development of new resort/hotel facilities that are located and designed so that guests can conveniently walk or bike to nearby dining, shops, and other local amenities, or that rely on shuttle transportation provided by the resort/hotel. The development of the Vine Trail, a regional walking and biking trail system will connect St. Helena to the rest of the Napa Valley, and will also help increase reliance on pedestrian and bicycle transportation modes, thereby helping to manage congestion in the area.
- Regional trips to and from St. Helena typically begin or end within Napa County. The majority of these trips originate and/or terminate in the City of Napa, Deer Park, Calistoga, Yountville, and Angwin. Developing viable transportation alternatives to single-occupancy vehicle trips for these regional trips will help to reduce VMT.
- Because State Route 29 is the main route for vehicles traveling from Lake County or Northern Sonoma County to the City of Napa and destinations to the south, inter-county travel contributes to significant congestion along St. Helena's Main Street. During peak travel times, less than half of all vehicles on State Route 29 are traveling to or from destinations within St. Helena. While policies and implementing actions in the General Plan seek to improve circulation within the city, additional housing, employment, and public transit policies at the regional level will be required to reduce VMT throughout the Napa Valley, and in turn, St. Helena.
- Although there is rail service for tourists on the Wine Train, no commuter rail service exists at this time. According to the Napa Valley Transportation Authority (NVTA) 2003 Napa/Solano Passenger/Freight Rail Study, commuter rail and light rail service in the area is not viable due to high costs, a small service population and lack of adequate rail infrastructure to support higher speeds.

CONCEPTS, TRENDS, AND IDEAS

Regional Coordination



Vision 2040: Moving Napa Forward outlines a comprehensive vision for the County's transportation system in 2040.

The Napa Valley Transportation Authority (NVTA) is a key partner and resource in regional transportation planning, programming and funding administration for Napa County. The NVTA is a Joint Powers Agency (JPA) comprised of the City of Calistoga, City of St. Helena, Town of Yountville, City of Napa, City of American Canyon, and Napa County. Originally known as the Napa County Transportation and Planning Agency (NCTPA), the agency's Board of Directors approved a resolution to re-brand as NVTA in February 2016 to clarify the agency's role in the community. The NVTA's Board of Directors includes the mayors and one councilmember of each of the jurisdictions in the County, and the Chairman of the Board and one Supervisor of Napa County, and one non-voting representative from the Paratransit Coordinating Council. The NVTA operates the countywide transportation program, including countywide transit service, paratransit, community shuttles, and the Vine Transit.

In 2015, the NVTA issued The Napa Countywide Transportation Plan - Vision 2040: Moving Napa Forward, a report that identifies the transportation issues facing Napa County and outlines a comprehensive vision for the County's transportation system in 2040. This report includes a series of goals designed to attain this vision and addresses how strategic transportation planning may enable the County to resolve key issues that might arise in the future due to projected population and employment growth. The Circulation Element includes a number of policies and implementation actions that support NVTA recommendations, such as transportation demand management.

An interconnected multimodal system will include bicycle and pedestrian paths.

- The Napa Valley Wine Train, which operates on the former Southern Pacific Rail line, is a tourist-oriented, recreational ride carrying riders on a round trip between Napa and St. Helena. Due to an agreement with the California Public Utilities Commission (CPUC), the train does not currently stop to board or disembark passengers at any location other than the point of origination in the City of Napa and partnering wineries and vineyards included in select packages that include winery tours. Opportunities exist to reduce reliance on the automobile for access, given that if passengers are able to board and disembark in St Helena, this would decrease automobile traffic demand along the Wine Train Corridor. Additionally, hotel/hospitality facilities and other tourism-oriented amenities located in close proximity to the Wine Train right-of-way would be consistent with the City's goal of reducing the tourism industry's reliance on the automobile.

Bicycle and pedestrian paths can be located adjacent to creeks.

5.4 St. Helena's Circulation and Mobility Future

St. Helena's transportation infrastructure and compact development pattern create a relatively walkable community, despite being located in a predominantly rural area. It also provides direct access to regional destinations throughout the Napa Valley. However, key constraints to efficient and sustainable circulation in St. Helena include congestion along State Route 29 and regional land use patterns that are not conducive to efficient transit service, walking or biking.

The City of St. Helena and Napa County share the goal of reducing traffic congestion in the region by encouraging the development of a multimodal transportation network, supported by land use decisions that encourage alternatives to single-occupancy vehicle trips. The Circulation Element identifies the key components of a sustainable transportation system, including the following:

- Street Typology System and Network;
- Pedestrian and Bicycle Network;
- Transportation Performance Measures; and
- Transportation Demand Management Program.

Residential streets provide access to neighborhoods.

STREET TYPOLOGY SYSTEM AND NETWORK

Street Typology System

The General Plan street network and street typology system is shown on Figure 5.1. The St. Helena General Plan Circulation Element introduces a new street typology system, replacing the previous street classifications, which established one set of design and operation standards based on a rigid, hierarchical classification of roadways. New street typologies consider the street context and alternate travel modes to help ensure that street standards consider a roadway's relation to its surrounding land uses, appropriate travel speeds, and the need to accommodate multiple travel modes.

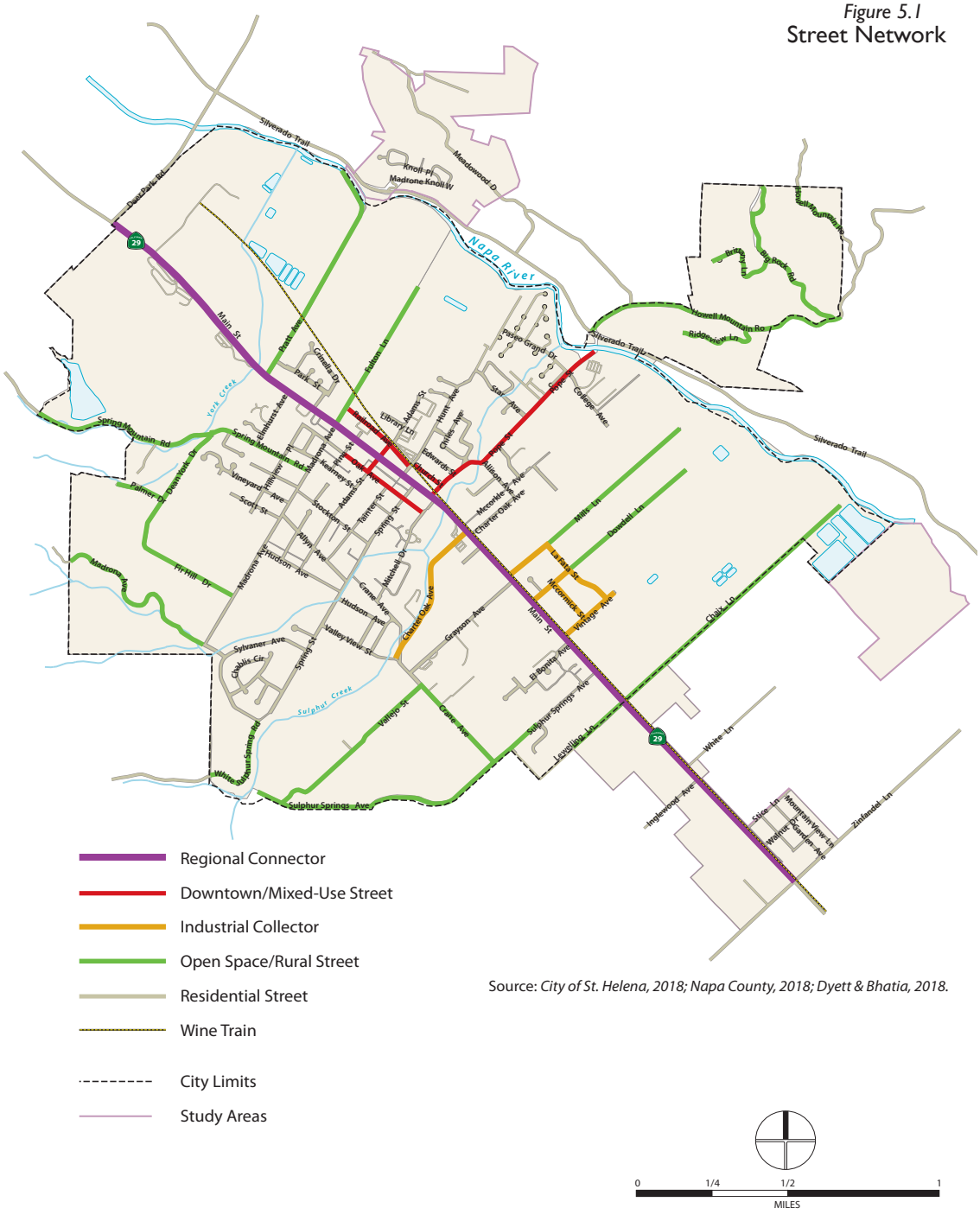
The streets of a given neighborhood or district have characteristics that generally follow the land use character of that area and the role that streets play in the greater street network of the surrounding community. For example, a residential street that serves as a collector will have different characteristics and design features from a residential street that provides local access. Similarly, a downtown/mixed-use street and an industrial collector street serve different

functions. A downtown/mixed-use street emphasizes accommodating several transportation modes, while an industrial collector emphasizes accommodating heavy trucks and automobiles. Consequently, the design features and overall user experience may differ greatly.

The following street typologies are part of the City's new street typology system. Application of these standards should be considered for any new development, street repaving, or redevelopment project.

- **Open Space/Rural Street** – Provides access to open space, vineyard and agricultural areas, and rural residential uses. Sidewalks and curbs are not typically present on rural street types, though bicycle boulevards and low speed limits may be present on some open space or rural streets.
- **Industrial Collector Street** – Supports truck access to manufacturing and industrial land uses. While sidewalks are present on all streets, bicycle, and transit facilities are not typically present for this street typology.
- **Residential Street** – Provides access to neighborhoods. This street type supports local trips, with an emphasis on pedestrian and bicycle amenities and slow driving speeds.
- **Downtown/Mixed-Use Street** – Supports all travel modes. It includes specific design features that promote livable streets and multimodal access such as wide sidewalks, traffic calming features, and bicycle boulevards.
- **Regional Connector Street (Main Street)** – Supports all modes, but is primarily designed to provide citywide and regional access for cars, transit and trucks trips. As Main Street/State Route 29 is the key commercial center for St. Helena, specific design features that foster livable streets and multimodal access may be applied, including wide sidewalks with regular street crossings, high-quality pedestrian amenities, and enhanced bus transit facilities. At the edge of the downtown area, Main Street/State Route 29 transitions into a more suburban and rural environment. These sections have higher vehicle speeds and less walking and bicycling activity than the center of downtown.

Figure 5.1
Street Network



Source: *City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018.*

TABLE 5.4: Street Typologies

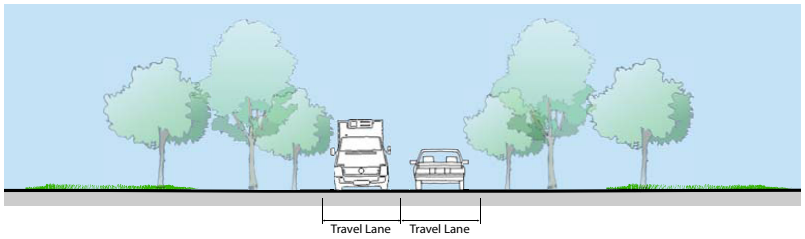
Street Typology	Vehicle Traffic Levels	Pedestrian Facilities	Bicycle Facilities (designated network)	Desired Vehicle Speeds/ Traffic Calming	Truck Route	Transportation Performance Measure
Open Space/ Rural Street	Low / moderate	Sidewalks not typically included	Bicycle route or boulevard	25-35 mph/ Yes	Accommodated	Citywide ATG1, bicycle connectivity, pedestrian connectivity
Industrial Collector Street	Low	Sidewalks	Typically none	25 mph/ No	Accommodated	Citywide ATG, bicycle connectivity, pedestrian connectivity
Residential Street	Low / moderate	Sidewalks (with landscape buffer or street trees where appropriate), crosswalks where appropriate	Bicycle boulevard or lane	15-25 mph/ Yes	Accommodated on designated routes	Citywide ATG, bicycle connectivity, pedestrian connectivity
Downtown/ Mixed-Use Street	Low to moderate	Wide sidewalks (with landscape buffer or street trees where appropriate), regular crosswalks	Bicycle boulevard or lane	25 mph/ Yes	Accommodated on designated routes	Citywide ATG, Bicycle connectivity, pedestrian connectivity
Regional Connector Street (Main Street)	High	Wide sidewalks (with landscape buffer or street trees where appropriate) and regular crosswalks in downtown area. Outside of downtown: regular crosswalks and sidewalks included where demand warrants	Bicycle route, lane or adjacent trail	25 -35 mph/ context-based	Accommodated	Peak hour vehicle travel time, citywide ATG

Notes: 1ATG = Automobile Trip Generation
Source: Fehr & Peers, 2009

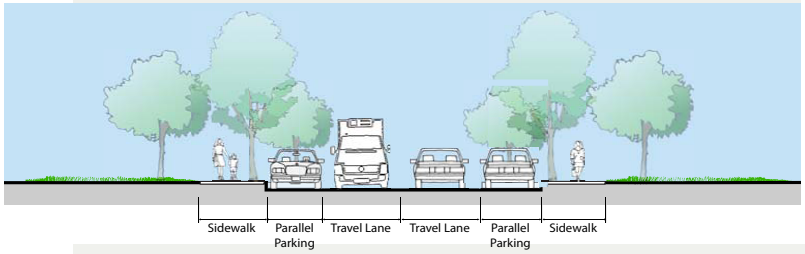
Figure 5.2

Street Typology Cross Sections

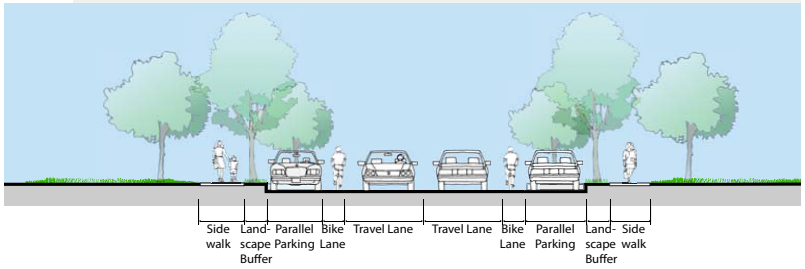
Open Space/ Rural Street



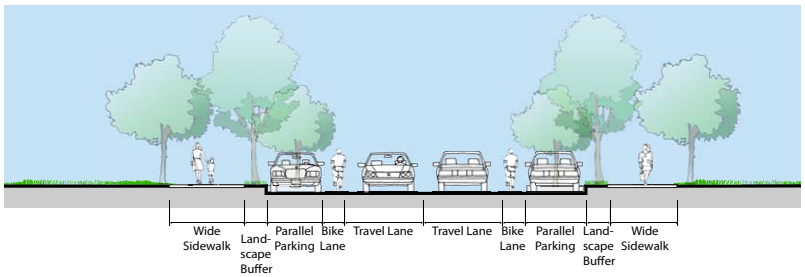
Industrial Collector Street



Residential Street



Downtown/ Mixed-Use Street



Regional Connector Street

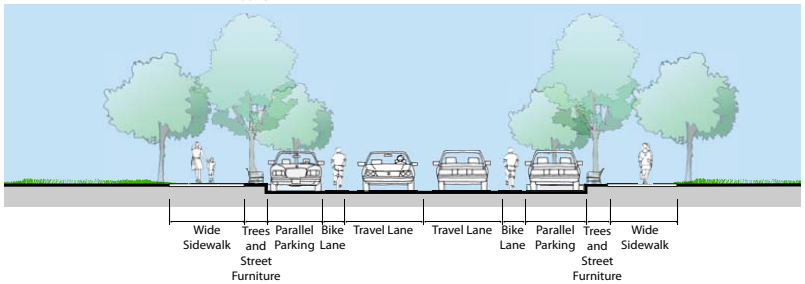
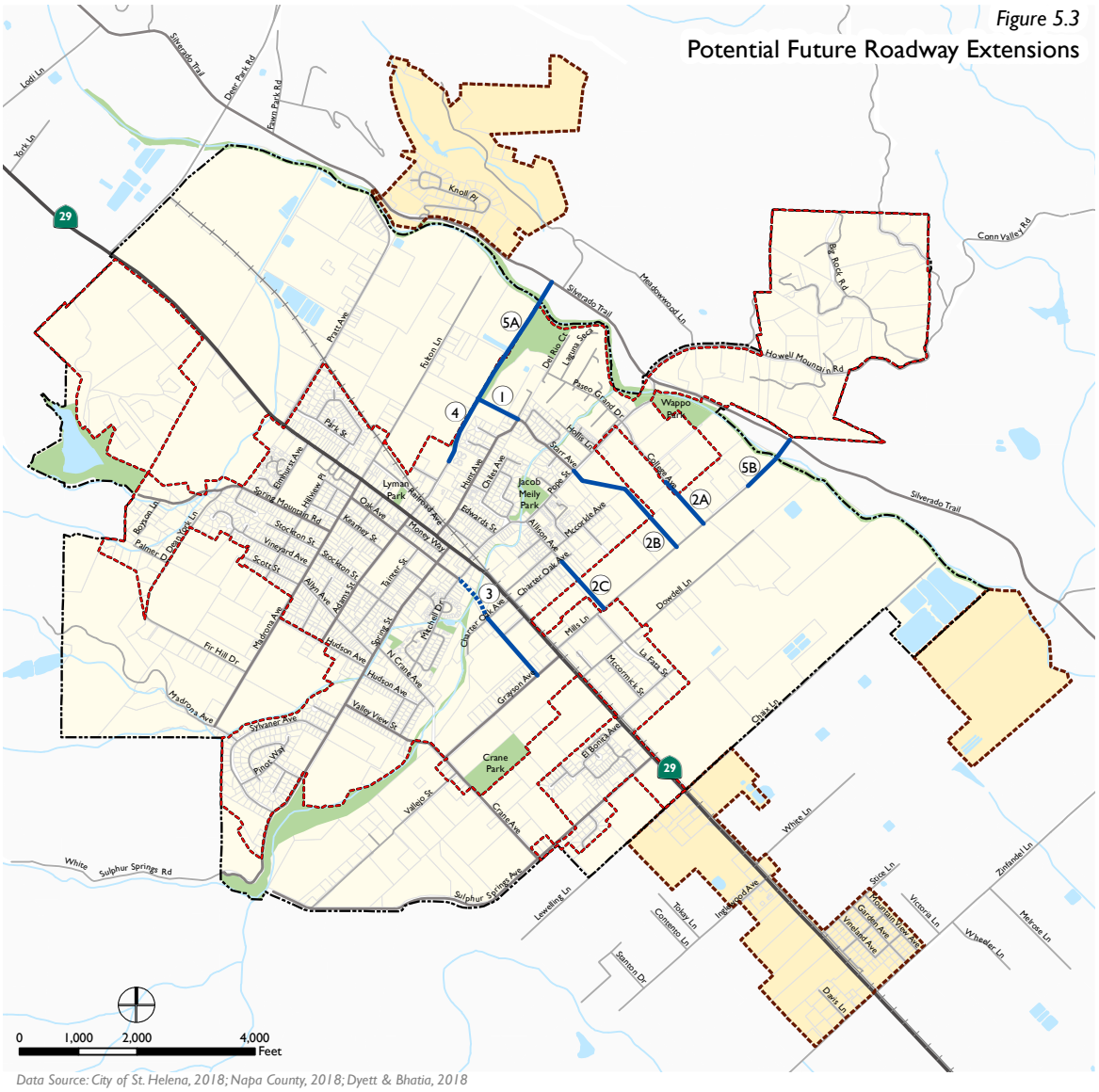


Figure 5.3

Potential Future Roadway Extensions



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Potential Future Roadway
- Potential Future Bicycle/ Pedestrian Path (with access controls)
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

(1) Starr Avenue extension north to Adams Street

(2A) (2B) (2C) College Avenue, Starr Avenue or Allison Avenue extension to Mills Lane

(3) Oak Avenue from Charter Oak Avenue to Grayson Avenue with limited access from Mitchell Drive to Charter Oak Avenue

(4) Adams Street from its current eastern terminus to Starr Avenue

(5A) (5B) Extension to Silverado Trail, by extending Adams Street or Mills Lane.

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Circulation Study Alternatives

In order to manage congestion and provide new connections within the city, as part of the General Plan update, several new streets are identified as potential options to explore in the future. In most cases, the potential connections provide options for residents to travel from one part of town to another without having to travel on State Route 29, which is frequently congested due to high regional traffic demand. The potential street extensions provide for various levels of access to accommodate different modes of travel. As shown in Figure 5.3, they include the following:

1.0. Starr Avenue extension north to Adams Street;

2A/2B/2C. Starr Avenue, College Avenue, or Allison Avenue extension to Mills Lane;

3.0. Oak Avenue extension south from Charter Oak Avenue to Grayson Avenue, with limited access (bike, pedestrian, and scooters) from Mitchell Drive to Charter Oak Avenue; with the intention to construct at the earliest opportunity a walking and bicycle path to facilitate pedestrian and bicycle access to the High School (and thereby minimize such traffic on Highway 29);

4.0. Adams Street extension from its current eastern terminus to Starr Avenue; and

5A/5B. Alternative extensions to the Silverado Trail, by studying potential extensions of Adams Street or Mills Lane.

General Plan implementing action CR1.B provides guidance for any future roadway extensions. The City envisions that each of the "Future Roadway Extensions", as identified in Figure 5.3, would at a minimum consist of a bicycle/pedestrian path, equivalent to a "Class 1 Bike Path", and would also be designed to accommodate emergency vehicles. Any proposed improvement of the road extensions identified in Figure 5.3 intended to accommodate vehicular automobile and truck traffic would trigger a requirement for a "Special Study", subject to City Council

Sidewalks in the Central Business District have several pedestrian amenities such as benches, trees, and street lights.

approval, to assess the net benefit of the proposed vehicular improvement, including, among other issues, the cost of constructing the vehicular extension and any impacts of the vehicular extension on roads and neighborhoods in the area. Any development project proposed on property located within the future alignment of the "Future Roadway Extensions" as depicted in Figure 5.3, would, as part of their review and entitlement process, be responsible for preparing a "Special Study" as described in this Chapter to determine whether the subject extension will consist of the minimum bike/pedestrian path improvement, or if the extension will be constructed to also accommodate vehicular auto and truck traffic. In either case, the subject development project would construct and fund its "fair share" cost of the "Future Roadway Extension".

To reduce the attractiveness of the new streets as cut-through routes, vehicle turn restrictions may be implemented at particular locations. In some locations, new bridges may also be needed to replace bridges at the end of their design life, or as part of new street connections.

St. Helena has several Class III bicycle routes.

PEDESTRIAN AND BICYCLE NETWORK

Pedestrian Circulation

The Central Business District surrounding Main Street is where the greatest number of pedestrians will be served in St. Helena. Downtown was originally developed with a grid of streets that includes a comprehensive network of sidewalks. Older neighborhoods surrounding the downtown core generally have well-maintained sidewalks that provide pedestrian access between residential areas and schools, community centers, and other walkable destinations.

Neighborhoods near the city's periphery have fewer pedestrian amenities, and many lack sidewalks. Some of these neighborhoods have a rural character where sidewalks may not be appropriate, whereas other post-World War II suburban developments were designed primarily for vehicular access and would benefit from improved pedestrian access

An inventory of existing sidewalks, marked crosswalks, curb ramps and trails was completed for St. Helena as part of the 2016 Napa Countywide Pedestrian Plan (See Figure 5.4). The Countywide Plan, which includes a pedestrian plan for St. Helena, identified pedestrian improvements for key areas of the city in order to improve pedestrian circulation in the vicinity of schools, businesses, and transit facilities, as well as to bolster connections to multi-use pathways.

Bicycle Circulation

St. Helena has an extensive network of Class III bicycle routes, which are routes marked for shared use with motor vehicles. However, bike lanes and multi-use paths that provide dedicated space for bicyclists have not yet been developed in St. Helena, and bicycle support facilities, such as bicycle parking, are lacking in many areas. Additionally, both pedestrian and bicycle access to open space and regional destinations throughout the Napa Valley could be improved through a system of off-street multi-use paths.

Reducing local vehicle trips into downtown St. Helena by shifting those trips to biking or walking would help alleviate congestion and parking concerns and promote increased health. Implementation of a citywide bikeway network that

includes the construction of bicycle facilities at activity centers throughout the city could greatly increase the mode share of bicycling. Key activity centers that could be conducive to increased rates of bicycling include the downtown area, bus stops, schools, parks, hotels, and local wineries. Development of the Vine Trail and a shared use path along Sulphur Creek would provide greater recreational, tourist, and commuting choices by bicycle.

Bicycle Classifications

The City's bikeways include three classifications: bike paths, lanes, and routes. These classifications are described below.

Class I Bikeway (Bike Path) paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow of vehicle traffic. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.

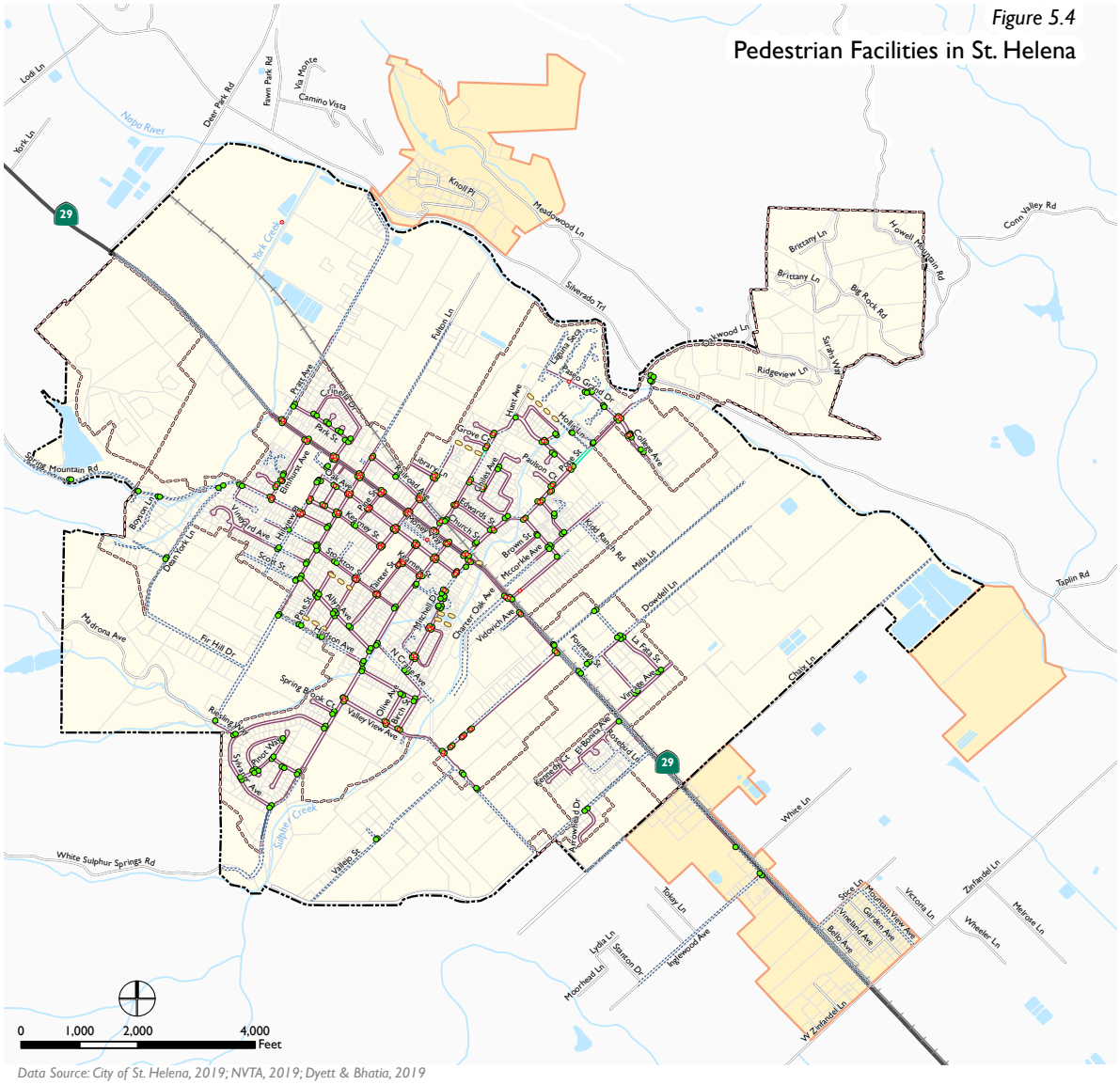
Class II Bike Lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).

Class III Bike Routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Class IV Bikeway (Separated Bikeway) Separated Bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Guidelines for Separated

Figure 5.4

Pedestrian Facilities in St. Helena



Data Source: City of St. Helena, 2019; NVTA, 2019; Dyett & Bhatia, 2019

- Crosswalk
- Curb Ramp
- Asphalt Sidewalk
- Existing Sidewalk
- Missing Sidewalk
- Trails
- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

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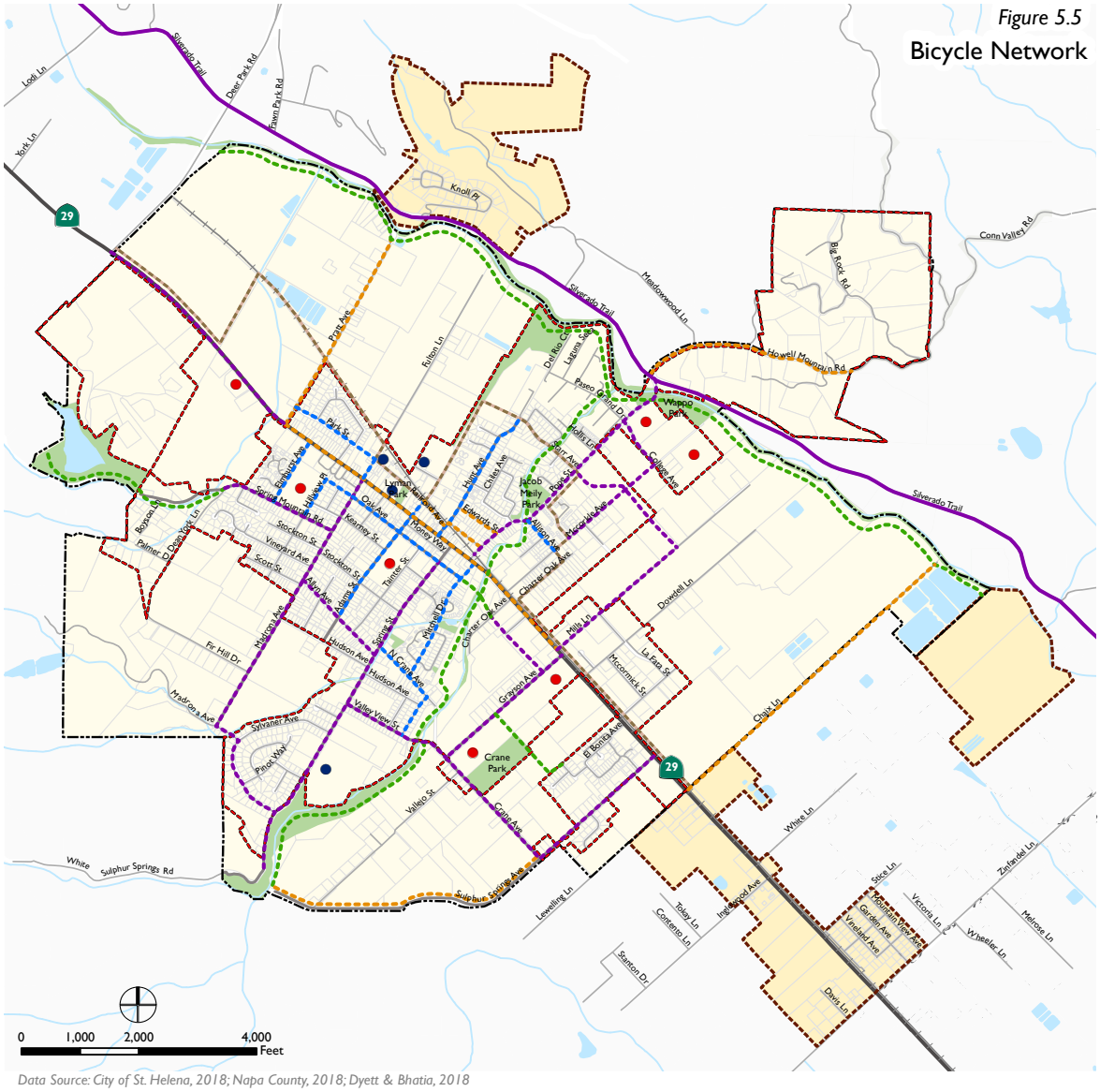
Figure 5.5

Bicycle Network



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Proposed 2030 Network

- Proposed Class I Bicycle Path
- Proposed Class II Bicycle Lane
- Proposed Class III Bicycle Route
- Proposed Bicycle Boulevard
- Proposed Napa Valley Vine Trail*

* The Vine Trail will include Class I, Class II and Class III segments

- School
- Public Facility
- Existing Class II Bicycle Lane**
- Highway
- Major Roads
- Local Roads

** The existing bike path is a County path.

- Railroads
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

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A Class I bike trail connects Pope Street to Wappo Park

Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Approved Bicycle Network

St. Helena's bicycle network aims to maximize connectivity throughout the city (Figure 5.5). The St. Helena Bicycle Plan, prepared in collaboration with the Napa Valley Transportation Authority, outlines existing and planned bicycle routes intended to provide safe and convenient bicycle access to parks, open spaces, commercial areas, residential neighborhoods, and community facilities. Once completed, the network will play a key role in bolstering the City's efforts to increase the use of bicycles as non-auto modes of transit, and to reduce overall vehicle miles traveled in the city.

Proposed Class I bicycle pathways cross the city, connecting parks and open spaces with multimodal trails that are completely separate from auto traffic. These shared-use pathways provide key cross-city connections and include the proposed Napa Valley Vine Trail and a shared-use path along Sulphur Creek and

the Napa River. Additional Class I pathways connect the Lower Reservoir Park to Spring Mountain Road and Crane Park to Grayson Avenue. Shared-use paths should accommodate all pedestrians, including persons that use an assistive mobility device for a disability or medical condition.

Class II bicycle pathways that provide a designated lane for bicycle travel are proposed along many of St. Helena's streets. Key east-west routes include: Madrona Avenue between Main Street and Sylvaner Avenue; Spring Street between Oak Avenue and Sulphur Creek; Pope Street between Main Street and Silverado Trail; and Grayson Avenue and Sulphur Springs Avenue, between Main Street and Crane Avenue. Key north-south routes are located on Spring Mountain Road, Valley View Street, Crane Avenue, and State Route 29 between Deer Park Road and Pratt Avenue.

The network includes a series of Class III pathways designated for shared-use of vehicles and bicycles. Some of these pathways have an additional designation for use as Bicycle Boulevards. Key Class III pathways include Chaix Lane, Pratt Avenue, and State Route 29 between Pratt and Grayson avenues. Bicycle Boulevards are primarily located in the residential neighborhoods directly east

and west of Main Street. Key Bicycle Boulevards include Mitchell Drive, Adams Street, and Oak Avenue.

Bicycle Parking and Support Facilities

Every bicycle trip has two main components: the route selected by the bicyclist and the "end-of-trip" facilities at the destinations. The availability of both safe bicycle routes and secure and convenient facilities is critical to promoting greater bike usage in St. Helena. Bicycle facilities can include short- and long-term bicycle parking, showers, lockers, and good lighting.

Providing short- and long-term bicycle parking at key destinations, such as downtown St. Helena, parks, schools, community facilities, transit stops, and shopping areas, is an essential part of the development of a complete bicycle network. Bicycle parking that is highly visible, accessible, and easy to use can help encourage cycling as a mode of transportation in the community. Similarly, conveniently located facilities such as showers, bicycle repair stations, and air for inflating tires can encourage cycling, as can locating these facilities in well-lit areas and indoors or covered where possible.

TRANSPORTATION PERFORMANCE MEASURES

A key action to address the future of transportation and mobility in St. Helena will involve developing new transportation performance measures, in addition to more traditional level of service standards, to ensure a balanced perspective on transportation including all of the community's values and interests. As such, the City is committed to augmenting the traditional automobile Level of Service (LOS) threshold with measures that capture transportation system performance from the perspective of all users and incorporate the environmental consequences of transportation decisions.

A new approach designed to achieve the following objectives will be needed:

- Develop an alternative way of evaluating new land use development impacts for automobiles, pedestrians, bicycles, and transit.

- Develop a quantifiable way of measuring the transportation-related GHG impacts and benefits of new land use development and transportation infrastructure improvements.

The purpose of augmenting current transportation performance measures is to develop a meaningful nexus between transportation-related development impacts and appropriate actions to address these impacts. Additional performance measures would improve multimodal circulation and manage traffic congestion in St. Helena. The reasons for adopting new standards include:

- Mitigation measures based solely on traditional LOS can sometimes result in widening roads and intersections in a way that conflicts with community character or other values established in this General Plan. Additionally, such measures in isolation can encourage additional vehicle trips and have a negative impact on other travel modes.
- Thresholds for traditional LOS standards are not necessarily linked to the City's vitality and quality of life and can make smart growth projects, such as mixed-use infill development in downtown St. Helena, more difficult.

Several targets, including operating standards for vehicular travel times on Main Street, standards for new auto trips generated by new development, as well as targets for increasing pedestrian and bicycle trips are set forth in the goals, policies, and implementing actions of this Element. Implementing action CR1.D calls for additional performance measures to improve multi-modal circulation and better address congestion in St. Helena.

TRANSPORTATION DEMAND MANAGEMENT PROGRAM

Transportation Demand Management (TDM) strategies aim to reduce the amount of motor vehicle traffic and manage parking to make travel behaviors more sustainable. TDM policies and programs also encourage the use of modes other than single-occupancy vehicles for travel. Strategies may include carpooling and car-sharing, transit subsidies or reimbursements, paid parking, and the provision of bicycle support facilities at workplaces.

The General Plan supports the establishment of a citywide TDM program to help reduce peak period motor vehicle traffic and manage vehicle parking within St. Helena. NVTA's Strategic Transportation Plan identifies a number of TDM strategies that are applicable to reducing motor vehicle traffic congestion in St. Helena. Funding for a citywide TDM program should be provided through traffic mitigation fees and in-lieu parking fees. In addition, the City should encourage existing employers to participate in the TDM program.

5.5 Goals

Meet Current and Future Transportation Needs.

Meet the current and future mobility needs of residents, businesses and tourists with a balanced, multimodal transportation system, with transportation performance measures that aim to reduce greenhouse gas emissions, manage vehicle congestion along the citywide street network, and increase non-automobile and emergency connections throughout St. Helena. The City plans and manages the transportation network to achieve the following objectives:

a) Ensure that Traffic Service Level "C" or better be maintained at all signalized and unsignalized intersections in St. Helena, except along Main St/Hwy 29 where Service Level "D" shall be permitted. Exceptions to this goal may be permitted in situations where the preexisting 2015 Traffic Service Level do not meet these "C" and "D" standards. In such situations, the projected Traffic Service Level resulting from a proposed project, shall not be "significantly lower" than the 2015 Traffic Service levels as documented in the 2018 General Plan Update Program EIR. The City Council has the discretion to determine what constitutes a "significantly lower" Traffic Service Level.

Examples of measures of "significantly lower levels of service" include 1) should state deterioration from an acceptable LOS to an unacceptable LOS in accordance with NVTA's Countywide Transportation Plan; 2) a significant increase in the volume to capacity ratio for a signalized intersection; or 3) a significant increase in delay at an unsignalized intersection.

b) Provide a complete bicycle and pedestrian network between residential areas, downtown, recreational open space areas, and other major activity centers identified by the City.

c) Reduce transportation-based GHG emissions communitywide and from City-controlled sources.

d) Increase the share of trips made by transit, bicycling, and walking (as measured by the American Community Survey).

e) Reduce current peak hour vehicle travel times on Main Street.

f) Create an Interconnected Multimodal Circulation System with a safe and integrated bicycle and pedestrian system throughout St. Helena for people of all ages and abilities.

g) Increase the City's share of walking, bicycling, transit, and carpooling trips, in accordance with NVTA's 2035 goals.

h) Provide a safe, efficient, and well-maintained circulation system that supports safe and efficient travel for all modes and users.

i) Ensure a Sustainable Transportation Network. Reduce congestion and greenhouse gas emissions and increase the mode share for all non-single-occupancy trips. To achieve this goal, the City supports the use of transportation demand management (TDM) strategies that promote sustainable transportation practices through encouragement, education, and incentives.

5.6 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Balanced and Multimodal System;
2. Safe, Accessible, and Comprehensive Bicycle and Pedestrian Network;
3. Sustainable Mobility Practices;
4. Safe and Well-Maintained Circulation System;
5. Parking; and
6. Improvements and Phasing.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they provide strategic directions for City staff and partners, highlighting where time and resources should be focused.

topic area
1 BALANCED AND MULTIMODAL SYSTEM

Policies

CR1.1 Promote a connected street and bicycle and pedestrian network within the city to provide better internal automobile, bicycle, and pedestrian connections for residents.

CR1.2 Provide complete streets that balance the diverse needs of users of the public right-of-way, in accordance with the California Complete Streets Act of 2008.

CR1.3 Pursue appropriate funding for the development of a balanced transportation system.

CR1.4 Develop and use, in addition to intersection level of service standards, performance measures that consider all road users to determine transportation impacts of new development.

CR1.5 Avoid mitigation measures that negatively impact the walking and bicycling environment and encourage driving.

Promoting complete streets will balance the diverse needs of pedestrians, bicycles, automobiles, and transit.

CR1.6 Continue to support NVTA in the provision of convenient transit, including regional and local service. Support more frequent and reliable transit service between communities to reduce the number of people traveling to or from St. Helena to work by private vehicle. Promote and encourage use of the St. Helena Vine Shuttle.

topic area
1 BALANCED AND MULTIMODAL SYSTEM

CR1.7 Explore the use of the rail corridor to reduce traffic, including working with the owners of the Wine Train to consider the possibility of developing hospitality and other tourist-oriented uses that are primarily accessed by passengers riding on the Wine Train Corridor.

CR1.8 Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies:

- Complete the City's bicycle and pedestrian network, which will increase transportation choices in the city and reduce the demand for vehicle travel
- Implement "smart growth" and sustainable planning principles as defined in the Land Use Element;
- Maximize the overall efficiency of the transportation system, including managing the transportation network through a citywide transportation system management program;Encourage/provide incentives for employee car pools.
- Implement "smart growth" and sustainable planning principles as defined in the Land Use and Growth Management Element;
- Encourage jobs/housing match, as defined in the Housing Element; and
- Encourage/provide incentives for employee car pools.

CR1.9 Promote a walking and bicycling environment that is comfortable and convenient. Ensure that all St. Helena streets have no more than a single through-automobile lane in each direction, plus a single left-hand turning lane where appropriate, even if this requirement increases vehicle travel times. Allow exceptions if an extra lane would reduce the possibility of collisions.

CR1.10 Strive to maintain a ten minute or less travel time during peak periods along State Route 29, from the northern and southern city boundaries.

topic area
1 BALANCED AND MULTIMODAL SYSTEM

CR1.11 Establish a multimodal transportation impact fee program as part of the City's existing transportation impact fee, to finance and implement project mitigations that help achieve the City's traffic reduction goals. As part of the multimodal transportation impact fee program, require new development to analyze travel demand and finance and construct all required off-site circulation improvements, including proposed road extensions, necessary to mitigate project impacts and to reduce the severity of cumulative transportation impacts to all modes of travel.

Implementing Actions

CR1.A Use the street typologies as defined in the Circulation Element as a basis for improving and managing streets. Improve vehicle, pedestrian and bicycle facilities on streets based on this system.

CR1.B Evaluate the following new connections to promote increased bicycle, pedestrian, and non-automobile-based transportation, consistent with the requirement for the preparation of a "Special Study" as described in the Circulation Element. Where feasible, preserve existing rights-of-way.

- Starr Avenue extension north to Adams Street
- Consider three options for a connection to Mills Lane: a) Starr Avenue extension to Mills Lane; b) College Avenue extension to Mills Lane; or c) Allison Avenue extension to Mills Lane
- Adams Street from its current eastern terminus to Starr Avenue
- Consider two options to connect downtown St. Helena to Silverado Trail: a) Adams Street extension to Silverado Trail; b) Mills Lane extension to Silverado Trail

CR1.C Identify streets that should become "more complete," through consideration of transit priorities, sidewalk gap closures, new bikeways, and vehicle traffic calming measures.

topic area
1 BALANCED AND MULTIMODAL SYSTEM

CR1.D Adopt and implement transportation performance measures that promote an efficient transportation system from the perspective of all users. These performance measures shall supplement the City's traditional automobile Level of Service (LOS) thresholds with the goal of improving multimodal circulation and managing traffic congestion in St. Helena.

CR1.E Support efforts to secure additional funding for regional transit service to St. Helena for residents, workers and visitors as a viable alternative to travel by private automobile. Focus on improving the bus service for use by commuters.

CR1.F Subject all rail corridor uses to use permit review; locate passenger facilities within zoning districts which minimize impacts to established and proposed land uses.

CR1.G Study the potential for integrating Wine Train activities with car-free tourism strategies to provide an alternative for tourists to visit St. Helena without a car.

CR1.H Measure total automobile trips generated by new developments on a per project basis, to reduce vehicle trips. Maintain a citywide trip generation analysis methodology that evaluates the effects of land use and built environment changes on travel choices and behavior.

CR1.I Evaluate changes to vehicle travel times along State Route 29 on a per-development or per-project basis. Establish significance criteria for determining if an increase in travel time or decrease in Intersection Level of Service, resulting from new development is significant.

CR1.J As new land use development and redevelopment occurs, require the provision of links to existing streets, street right-of-way dedications, and improvements to the local roadway network (including pedestrian, transit,

topic area
1 BALANCED AND MULTIMODAL SYSTEM

bicycle, and other non-motorized vehicle improvements), consistent with adopted Engineering Standards, public safety standards, and the St. Helena Bicycle Plan. Additionally, in the case of subdivisions, require the provision of sidewalks on all local streets within the development.

CR1.K Adopt and implement a citywide, Multimodal Transportation Mitigation Fee program to provide funding on a fair share bases for transportation improvements that reduce citywide automobile trips and contribute to the provision of a continuous path of travel for walking and bicycling from the development site to the center of downtown and other key destinations. Such transportation improvements include completing the bicycle and pedestrian network, implementing transportation demand and systems management strategies, and improving traffic signal coordination on State Route 29. Ensure that fees take into consideration the contribution of new development to changes in net new automobile trips and change in travel time along State Route 29.

CR1.L Continue to work with Caltrans to ensure regional coordination and manage congestion on State Route 29.

topic area
2 COMPREHENSIVE PEDESTRIAN AND BICYCLE NETWORK

Policies

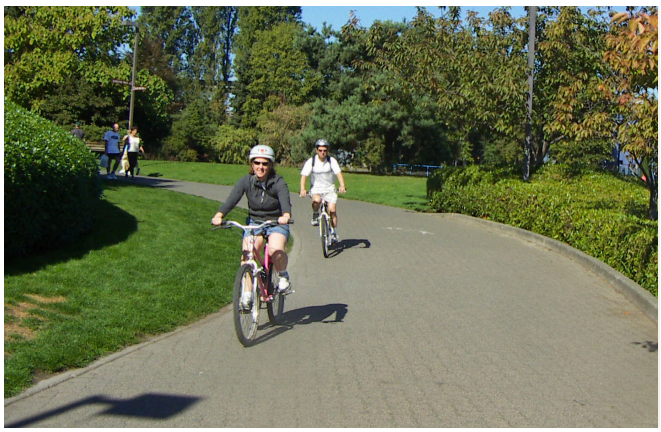
CR2.1 Create a comprehensive bicycle and pedestrian network that enhances neighborhood connectivity. Develop the system as shown in Figure 5.4 to expand and improve the pedestrian and bikeway system.

CR2.2 Promote walking and bicycling as safe and convenient modes of transportation.

CR2.3 Ensure secure, accessible, and convenient bicycle parking facilities throughout St. Helena, including downtown, commercial areas, schools, and parks.

CR2.4 Preserve and enhance pedestrian connectivity and safety throughout St. Helena.

CR2.5 Improve the pedestrian experience through streetscape enhancements, focusing improvements where there is the greatest need, and by orienting development toward the street.



Walking and bicycling should be promoted as safe and convenient modes of transportation.

CR2.6 Encourage walking and bicycling trips to St. Helena schools.

topic area
2 COMPREHENSIVE PEDESTRIAN AND BICYCLE NETWORK

Implementing Actions

CR2.A Implement a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena's existing partnership with the Napa Valley Transportation Authority (NVTA) to ensure that the City's master plan is consistent with countywide transportation planning efforts.

(Also see the following elements: Open Space and Conservation, Topic Area 2; and Parks and Recreation, Topic Area 6)

CR2.B Develop guidelines for the design, construction and maintenance of bicycle and pedestrian paths in St. Helena. Coordinate the guidelines with Napa County or regional trail connections.

CR2.C DRequire any new development and modifications to existing projects to provide bicycle and pedestrian improvements and amenities, consistent with adopted Engineering Standards and the St. Helena Bicycle Plan.

CR2.D Identify and pursue funding opportunities for bicycle projects on the local, state and federal levels. Update the existing and proposed bicycle system every five years, as required by Caltrans to qualify for Bicycle Transportation Account funding.

CR2.E Allocate funds and/or identify funding sources for pedestrian and streetscape improvements.

CR2.F Improve street crossings and gaps in the sidewalk system through development review and capital improvement projects.

CR2.G Adopt a crosswalk installation policy to promote pedestrian safety and accessibility.

topic area
2 COMPREHENSIVE PEDESTRIAN AND BICYCLE NETWORK

CR2.H Review pedestrian-vehicle collision data on an annual basis and identify areas for pedestrian safety improvements.

CR2.I Pursue state and federal grant opportunities to fund a Safe Routes to School program and other bike/pedestrian programs.

CR2.J Consider the feasibility of a citywide bike sharing program for municipal and/or public use.

CR2.K Require safe and accessible bicycle and pedestrian access for all newly-developed public facilities and sites.

CR2.L Enhance the pedestrian environment within the commercial area, and support the development of walking paths, multi-use trails, and bicycle trails throughout St. Helena with the goal of connecting to a countywide system. Encourage the use of group transit options in order to decrease tourist-generated traffic congestion. Encourage the use of pedi-buses by the school district to guide children safely and in a more healthful and sustainable manner to school.

Policies

CR3.1 Provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, walk, and take transit to work and reduce peak-period trip generation. Coordinate as appropriate with NVTA to implement strategies including the following:

- Transit subsidies or reimbursement to residents and employees (often referred to as "commuter check" or "EcoPass");
- Car-share, car-pooling, and neighborhood electric vehicle programs to reduce the need to have a car or second car;
- Integrated bicycle parking and support facilities, primarily to reduce trips within the city;
- Modified parking codes to manage the supply of parking that generates frequent turn-over and serves multiple users; and
- Marketing and information programs to encourage alternative transportation modes.

Supporting TDM programs such as transit and car-sharing can reduce peak-period traffic.

CR3.2 Support the implementation of NVTA goals to reduce/restrain growth of automobile vehicle miles traveled (VMT).

CR3.3 Shift travel from single-occupancy vehicles to other modes so that by 2040, 45 percent of work trips by St. Helena residents and workers are by carpool, transit, walking or bicycling (see Table 5.5 at the end of this section for 2040 commute mode split targets).

topic area
3 SUSTAINABLE MOBILITY PRACTICES

CR3.4 Work with the wine and hospitality industries to manage congestion and create and promote car-free tourism services, coordinating as appropriate with NVTA on TDM strategies.

(Also see the Environmental Sustainability Element, Topic Area 2)

CR3.5 Work with the school district to increase the use of carpooling and the bus system to reduce drive-alone trips to St. Helena schools.

CR3.6 Support development of the bikeway and pedestrian networks to provide a convenient opportunity for at least 20 percent of commuters to get to work by walking or bicycling.

CR3.7 Support compact, mixed-use development as outlined in the Land Use and Growth Management and Housing elements.

TABLE 5.5: Commute Mode Split Targets for 2040

Mode	Commute Trips by Workers To and From St Helena	
	2016	2040 Goal
Drove alone	77.8%	N/A
Carpooled	3.8%	At least 20%
Transit	1.0%	At least 5%
Bicycle	2.6%	At least 10%
Walked	6.2%	At least 10%
Other means (including work at home)	8.6%	N/A
Source: American Community Survey 2016 Estimates		

topic area
3 SUSTAINABLE MOBILITY PRACTICES

Implementing Actions

CR3.A Study the feasibility of a citywide TDM program and review the effectiveness of the existing Traffic Impact Mitigation Fee.

CR3.B If deemed feasible, as part of the municipal code, require TDM measures for all new non-residential development.

CR3.C Regularly monitor progress toward increasing the number of residents and workers walking, biking, and using public transit.

CR3.D Work with the wine and hospitality industries, including the Wine Train, to manage congestion and create and promote car-free tourism services.

topic area
4 SAFE AND WELL-MAINTAINED CIRCULATION SYSTEM

Policies

CR4.1 Ensure adequate maintenance of transportation facilities such as streets, sidewalks, and multi-use paths. Emphasize safety considerations, impacts on non-automobile modes of travel, and overall impact on long-term resource needs as maintenance priorities.

CR4.2 Ensure safety on residential neighborhood streets to promote walking and bicycling and preserve neighborhood livability.

CR4.3 Continue efforts to calm traffic and minimize traffic volumes and speeds in residential areas.

CR4.4 Strive to bring all pedestrian facilities into compliance with Americans with Disabilities Act (ADA) specifications.

CR4.5 Improve traffic safety and encourage walking and bicycling trips to St. Helena schools through a Safe Routes to School program.

topic area
4 SAFE AND WELL-MAINTAINED CIRCULATION SYSTEM

Implementing Actions

CR4.A Review and update the Capital Improvement Program on a regular basis to identify and prioritize circulation facility improvements. Ensure that improvements support the goals, policies, and implementing actions identified in the General Plan.

CR4.B Develop strategies to calm traffic on streets that experience speeding or cut-through traffic, such as Starr Avenue. Include a range of solutions including enforcement, engineering, and education efforts to calm vehicle traffic.

CR4.C Establish a transition plan that identifies prioritization and funding mechanisms for improving street conditions to meet ADA specifications. Transition plans are an important part of meeting ADA standards.

Street trees, sidewalks and signage are strategies to calm traffic on streets.

CR4.D Pursue Safe Routes to School grants to improve safety and encourage bicycling and walking trips to St. Helena schools.

CR4.E To reduce the effect of regional traffic on local streets, monitor traffic volumes and speeds on potential regional cut-through routes, including Oak Avenue and Valley View Street and other problematic streets like Spring, Pope, Starr, etc. Due to the forecast potential for traffic volumes to increase on Oak Avenue and Valley View Street, the City shall consider installing traffic calming or traffic diverting devices to discourage regional cut-through

traffic with the goal of ensuring that, over the duration of the General Plan, traffic volumes on these streets do not increase significantly.

CR4.F To ensure the multimodal Transportation Mitigation Fee (TMF) program serves as acceptable mitigation for the increase in traffic volumes resulting from build out of the General Plan, the City shall explore TMF programs within 6 months of adoption of the General Plan Update. As part of this effort, the City shall conduct a fee study to ascertain whether the fees designated under the existing fee program should be revised. As part of the fee study development, the City should consult with other local agencies, including Caltrans and the California Public Utilities Commission (CPUC), to identify potential improvements to Main Street beyond those currently under construction, and to at-grade railroad crossings that could be incorporated into the TMF program.

CR4.G The City shall consider the use of signal preemption for emergency response or evacuation in locations where Police and Fire Departments response times are not met.

CR4.H Connect Vallejo Street to Sulphur Springs with a fully paved street connection meeting the City's established Street Standards.

topic area
5 PARKING

Policies

CR5.1 Ensure an adequate balance of parking demand and supply. Closely manage and track parking supply within the downtown area by developing a parking management program and implementing a "park-once" strategy.

CR5.2 Maintain on-street parking and/or parklet on Main Street in the Central Business District for the convenience of shoppers and to provide a physical and psychological buffer between Main Street traffic and pedestrians.

Implementing Actions

CR5.A Develop a "park-once" strategy for visitors to improve air quality, reduce congestion, promote alternatives to driving alone, and educate and involve businesses and residents. Work with employers to encourage employees to park on the fringes of downtown, thereby leaving convenient parking spaces open for shoppers.

CR5.B Develop and maintain an off-street parking program for the City's existing Parking Impact Area and consider modifying the boundaries of that area. The program will identify and prioritize locations where additional off-street parking can be provided. When sufficient funds have accumulated for the acquisition of a site and construction of parking on that site, commence with implementation of providing parking on that site.

topic area
6 IMPROVEMENTS AND PHASING

Policies

CR.6.1 Prioritize and implement improvements to the circulation system with an emphasis on bicycle and pedestrian improvements and expanded transit service.

CR6.2 Require concurrent infrastructure development for any new development projects that have impacts on the circulation system, including streets, paths, trails, sidewalks, and public transit.

CR6.3 Consider requiring dedications and mitigations in addition to traffic mitigation fees for any development that occurs adjacent to proposed street corridors in order to reinforce circulation system continuity. Traffic mitigation fees are necessary to mitigate existing traffic congestion and congestion caused by new development. Consider revising fee schedules to fund needed vehicular, bike, and pedestrian improvements in order to appropriately mitigate impacts. The fee schedule must be based on an established "nexus" between new development and the planned improvements.

On-street parking on Main Street is convenient for shoppers.

Implementing Policies

CR6.A Evaluate and prioritize all new paths and trails (identified in Section E: St. Helena's Circulation and Mobility Future) when adequate funding is secured and concurrent with any new, adjacent developments.

CR6.B Keep up to date the existing St. Helena Traffic Mitigation Fee program to provide funding for all new road connections and trails included in the Circulation Element, in order to ensure new connections and trails are constructed in a timely manner.

CR6.C Develop a plan for all non-motorized vehicles, including bicycles, pedestrians, and scooters. To create a meaningful alternative to automobile

topic area
6 IMPROVEMENTS AND PHASING

usage for short trips, multi-use paths should connect home-to-work or home-to-local shopping locations. Link neighborhoods and commercial areas on a path system and encourage active modes of transportation.

chapter six

historic resources

6 historic resources

St. Helena is a community rich in historic resources including the Culinary Institue of America's Greystone Campus.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

6.1 Purpose of the Element

The Historic Resources Element is not a State-mandated element; however, it presents a framework for governing future decisions about rehabilitating, retrofitting and adaptively reusing St. Helena's historic buildings. The Historic Resources Element aims to effectively manage the community's historic assets including, but not limited to, buildings, bridges, and other structures in order to maintain St. Helena's unique sense of place and ensure that these assets can be enjoyed by current and future residents and visitors.

The Historic Resources Element includes the following sections.

- **6.2 Historic Resources in St. Helena**. Identifies key issues related to the preservation of historic resources in St. Helena (p. 6-3).
- **6.3 Key Findings**. Identifies key findings based on an existing conditions analysis (p. 6-10).
- **6.4 Goals**. Defines overarching goals to guide policies and implementing actions (p. 6-12).
- **6.5 Policies and Implementing Actions**. Identifies policies and implementing actions to preserve the City's cultural and historic resources (p. 6-14).

6.2 Historic Resources in St. Helena

Napa Valley has a long history of settlement dating back to around 2000 B.C., when Native Americans first inhabited the Napa Valley. Native Americans inhabited the area for thousands of years, and at the time of first contact with European settlers of the area, the Wappo had established a village near present day St. Helena called Annakatanoma. Until the 19th century, approximately 7,000 Wappo resided in the Napa Valley and surrounding hills, including Mount St. Helena.

St. Helena was first settled by members by the Native American Yukian group who occupied much of Northern California, including present day Napa County. When Spanish soldiers arrived in the area, they called the Yukians guapo, meaning courageous, a term that later became "Wappo."

Since its early days in the mid-19th century, St. Helena has been an agricultural and commercial center serving the surrounding towns and farming areas of the upper Napa Valley. The community initially served as a transfer point for agricultural goods and natural resources destined for markets in Napa and San Francisco. The City's more recent cultural roots stem from its role as an immigration destination for European settlers; however, the histories of both Native American and European peoples are important to the identity of St. Helena.

The influences of these early residents are exemplified in the City's historic structures, in particular stone and brick masonry structures, as well as European-styled, timber-constructed barns, bridges, wineries, and social halls located throughout the city. Additionally, St. Helena has typically been a destination for immigrants seeking labor opportunities in mining and the surrounding agricultural fields. In early years, Chinese laborers ventured to St. Helena from San Francisco and the mining areas of the Sierra foothills. More recently, workers from Mexico and Central America have settled in the area, bringing with them vibrant cultural traditions reflected in the holiday celebrations, arts, and culinary experiences of the area. Protecting and preserving the city's historic and cultural resources is essential to ensuring that St. Helena maintains its unique character while adapting to social and political changes and potential growth demands in the coming decades.

BENEFITS OF HISTORIC PRESERVATION

In 1998, downtown St. Helena was designated as a Nationally Registered Historic District, and the city boasts a number of landmark buildings that have been listed on the National and California State Historic Registers. Creative, forward-thinking planning can help the City leverage these historic resources to maximize their impact on local economic growth and maintain the high quality of life and character for which the city is known. Effective historic preservation policies can have many positive impacts, including cultural, social, and economic benefits. In addition, further integrating historic preservation into land use and urban design plans can contribute greatly to the city's long-term vitality.

In general, the social benefits attributable to historic preservation are cultural, educational, or environmental in nature. Collectively they contribute to the city's overall livability and quality of life. Cultural benefits include the celebration of diverse communities and the fostering of a sense of civic belonging and pride. For example, St. Helena is home to several historic wineries that contribute to the city's agriculture-based identity. Historic wineries include Beringer, Charles Krug, and Spottswoode. Additionally, educational benefits can take many forms, and often lay the foundation for collaboration between local educational, non-profit, and civic institutions. These collaborations may result in bringing local history to life for residents and visitors, enriching the overall experience of the city. Lastly, preserving and rehabilitating historic structures and surroundings can have positive environmental benefits on St. Helena by capitalizing on the investment of time, energy, and resources that have already gone into the construction and maintenance of the buildings. Rehabilitating historic buildings reuses existing materials and can help divert waste construction resources from entering local landfills. Establishing and implementing effective historic preservation policies will help ensure that St. Helena maximizes the breadth and impact of positive cultural, education, and environmental benefits into the future.

6 historic resources

The community of St Helena supports the preservation and restoration of historic resources such as the Logan House.

Economically, historic preservation provides a wide array of direct and indirect benefits to cities and can be a key driver of local economic development strategies. Direct benefits are mostly attributable to State and/or federally-registered buildings that qualify for tax credits and deductions to subsidize rehabilitation and construction costs. One indirect economic benefit, particularly applicable to St. Helena, includes creating a strong sense of place that is attractive to tourists seeking cultural destinations and experiences, and that can draw significant revenue from outside sources to support and circulate locally.

St. Helena's unique historic resources and Napa Valley location provide it with a strong position to capitalize on the economic benefits of well-planned and well-implemented historic preservation measures.

ST. HELENA'S INVENTORY OF HISTORIC RESOURCES

Numerous historical buildings and structures have been recorded within city limits as listed in Appendix A and shown in Figures 6.1 and 6.2. Historic resources are generally concentrated in the central part of the city, although there are historic resources on winery properties and adjacent to the Napa River. The most common historical property types consist of residences and commercial buildings, although other historic resources in St. Helena include barns, warehouses, wineries, churches, schools, bridges, a culvert, street lights, a motel, tankhouses, stonework, roads, a railroad depot, and government buildings. The majority of these properties were recorded as part of the 1977-1978 Napa County Historic Resources Inventory conducted by Napa Landmarks, Inc. and an historical architectural survey conducted by Page & Turnbull, Inc. in 2006.

TABLE 6.1. Historic Resources

Source / Location	Number of Resources[1]
1978 Survey	
Charter Oak District	49
Main Street District	57
Spring Street District	90
2006 Survey	30
National Register of Historic Places	15
National Register of Historic District	St. Helena Historic Commercial District (District includes 36 contributing and 13 non-contributing buildings)

1. Overlap exists among Historic Resource lists.
Source: City of St. Helena, Historic Resources Inventory (1978, 2006)

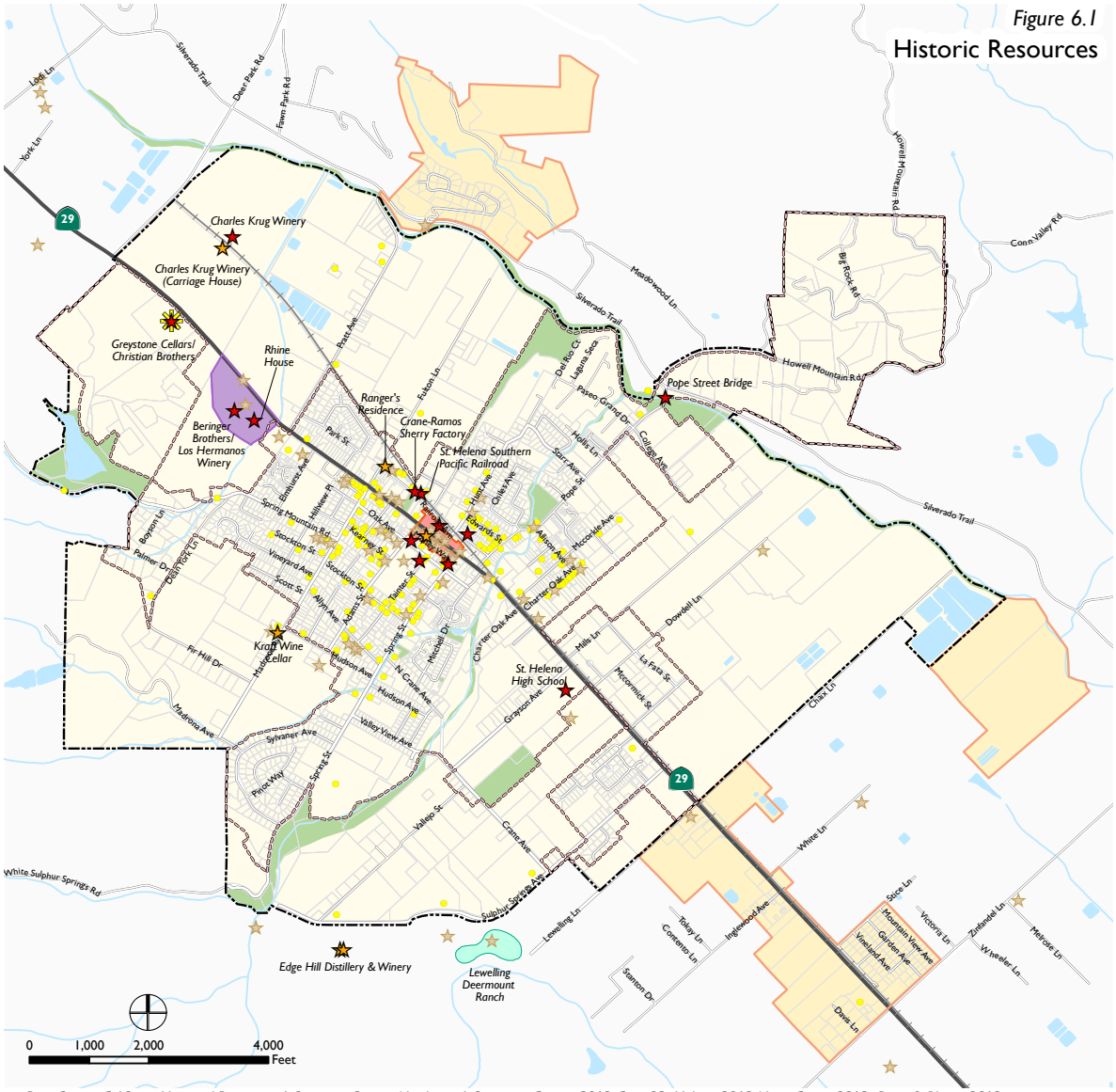
There are several well-preserved buildings along Main Street, including the Oddfellows building.

Eleven historical resources within the City limit are listed in the National Register of Historic Places and California Register of Historical Resources. Two of these historical resources—the Beringer Winery Historic District and the Main Street Commercial Historic District—include multiple buildings and structures, which are indicated by a National Register Status Code of "1D" in Table A-1 of Appendix A. The Main Street Commercial Historic District includes the 34 buildings considered to be contributors to the district's historic character or significance, along with 13 non-contributor buildings. Non-contributors are those buildings that, due to date of construction, alterations, or other factors, do not contribute to the historic character of the district. Numerous other historical buildings in St. Helena appear eligible for listing in the National and California registers, as indicated by a National Register Status Code "3S," which would qualify such properties as historical resources for purposes of CEQA.

6 historic resources

Figure 6.1

Historic Resources



Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

- National Register
- California Register
- State Landmark
- Eligible for National Register or California Register
- Locally-Designated Resources

National Historic District

- St. Helena Historic Commercial District
- Beringer Winery Historic
- Lewelling "Deermount" Ranch Historic District

- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

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Figure 6.2

Historic Resources Downtown St. Helena

Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

- National Register
- California Register
- Eligible for National Register or California Register
- Contributor to Historic District
- Locally-Designated Resources
- St. Helena Historic Commercial District
- Parks and Open Space
- Urban Limit Line
- Study
- City of St. Helena

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City of St. Helena

DYETT & BHATIA
Urban and Regional Planners

6.3 Key Findings

There are several opportunities related to historic resources in St. Helena. The following key findings are based upon comprehensive existing conditions analysis and community input:

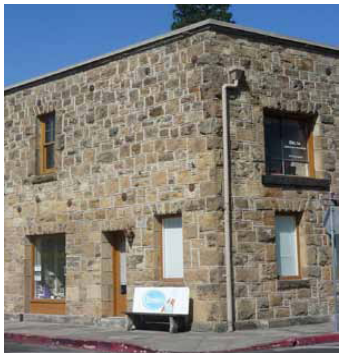
- St. Helena has a wealth of historic resources that contribute to and define its unique sense of place. Implementing measures to preserve and protect these resources can benefit the community for generations to come.
- St. Helena boasts a number of well-preserved buildings along Main Street that help communicate the City's character to those entering or passing through town, particularly from the north. Key landmark buildings include the Starr, Galleron, Ritchie, Oddfellows, and Pritchard buildings. Preserving these structures and ensuring that new development complements their landmark status can help St. Helena maintain its unique character
- The City has adopted a Historic Preservation Overlay District that establishes zoning regulations for historic resources located within the District. Currently, the Historic Preservation Overlay District applies to very few historic properties.
- Although there are more than 200 historically significant resources in the City, most are not included in the Historic Preservation Overlay District. Those properties not recognized may be vulnerable to alterations and demolition.
- St. Helena does not currently have a historic preservation ordinance. However, the design review process that is set up for all new construction, additions and alterations of both residential and non-residential buildings in St. Helena has special findings for consideration of historic buildings. This allows the City to require CEQA analysis of impacts on historic buildings pursuant to CEQA Guidelines section 15300.2, which states that a categorical exemption shall not be used for a project which may cause a substantial

adverse change in the significance of a historical resource. Special findings must be made to address the demolition of historic structures (section 17.164.050). These findings are:

- o That the building poses a threat to health, safety and general welfare if it is not demolished;
- o That restoration of the building is not feasible or practicable using current building codes, including but not limited to the Historic Building Code provisions of the Uniform Building Code of the State of California; and
- o That no public or other funding is available for financing renovation or purchase of the building.

- In 1999, the City implemented one of the first mandatory seismic retrofit ordinances of unreinforced masonry buildings (URM) within the state (Municipal Code section 15.40). Thirty-two URMs were identified. Seismic retrofit of all 32 buildings has either been completed or is in the construction phase of completion.
- The City of St. Helena Building Department utilizes the State's historic building code to encourage and assist in the preservation and renovation of historic structures.
- St. Helena's neighborhoods have unique characteristics that reflect the evolution of the City over time. Creating neighborhood-specific historic preservation design guidelines can ensure that structural alterations to existing homes reflect the neighborhood's past, while accommodating modern residential needs.

There are more than 200 historically significant resources in St. Helena.



Preserving St. Helena's historic resources will help maintain the City's unique sense of place.

6.4 Goals

The goals of the Historic Resources Element are:

Maintain St. Helena's Sense of Place and Visual Character.
St. Helena is dedicated to ensuring that new development complements existing buildings and supports the City's unique historic, agricultural character and setting.

Preserve and Protect St. Helena's Historic Resources.
St. Helena is committed to preserving and protecting its historic resources and ensuring that they remain for future generations.

Celebrate St. Helena's Distinct History and Heritage.
St. Helena is dedicated to celebrating its rich historic buildings and ensuring that they can be enjoyed by residents and visitors.

CONCEPTS, TRENDS AND IDEAS

Adaptive Reuse

Long Meadow Ranch and the Napa Valley Vintners Building are examples of adaptive reuse in St. Helena.

Adaptive reuse refers to the process of adapting older structures for use in different ways than originally intended. In this way, the existing architectural details and cultural and historic significance of older buildings can be maintained, while the use and function of the building changes to meet current and future needs. Examples of adaptive reuse include rehabilitating unused schools for use as offices or research facilities, and retrofitting former industrial buildings into residential units. Adaptive reuse can bolster planning efforts to reduce the occurrence of sprawl and preserve agricultural lands by focusing new development in already-developed areas of the City.

The Long Meadow Ranch Winery and Farmstead, located at the intersection of Charter Oak and Main streets, is an example of adaptive reuse in St. Helena. Reuse of the property, including the 130-year old gothic revival, two-story home, is currently underway. The project includes a nursery, restaurant, open air produce market and wine tasting room. In addition, the Napa Valley Vintners Association office building is another example of adaptive reuse

The Sciaroni Winery and Distillery dates from the 1880s.

6.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Protected Historic Resources; and
2. Historic Resources Awareness.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

topic area
1 PROTECTED HISTORIC RESOURCES

Policies

HR1.1 Preserve the City's historic and cultural resources, so that they may contribute to the special character and quality of the City and support its economic base.

HR1.2 Protect the historic resources that exist in the downtown commercial area.

HR1.3 Encourage the adaptive reuse, rehabilitation, and retrofit of historic buildings in which the original use is no longer feasible.

HR1.4 Promote the application of sustainable building practices to the preservation of historic resources.

St. Helena's historic and cultural resources contribute to its special character and quality of life.

topic area
1 PROTECTED HISTORIC RESOURCES

HR1.5 For development and redevelopment proposals in archaeologically and paleontologically sensitive areas of St. Helena or where tribal cultural resources are known to exist, require an assessment of the potential presence of archaeological, paleontological and tribal cultural resources, including a site survey and a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC). As warranted by the results of the assessment, require additional studies to identify and address project-specific impacts on archaeological and paleontological resources. The City shall incorporate the study recommendations as project conditions of approval to ensure that impacts on archaeological and/or paleontological resources are mitigated to the extent possible. Studies shall be prepared according to National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

HR1.6 For development or redevelopment on a site that contains any structures over 45 years old, require a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC) to determine the presence of historic resources. As warranted by the results of the records search, the City shall require evaluation of structures over 45 years old to determine their historical significance. Studies shall be prepared according to National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

topic area
1 PROTECTED HISTORIC RESOURCES

Implementing Actions

HR1.A Adopt a historic preservation ordinance to implement the policies recommended in the Historic Resources Element.

HR1.B Adopt design review guidelines and/or form-based codes, standards and criteria for the alteration or rehabilitation of historic properties. The adoption of design review guidelines and/or form-based codes can assist City staff, the Planning Commission, and City Council when reviewing permit requests and provide long-term regulatory consistency.

HR1.C Adopt design review guidelines and/or form-based codes that require new development in or adjacent to historic areas or buildings to be compatible in design and character with existing historic buildings.

HR1.D Develop an incentive program to encourage property owners to participate in historic preservation efforts. Potential program measures can include alternate building codes for historic structures and financial incentives, where necessary.

HR1.E Consolidate and update the existing inventories of historic buildings and houses and develop criteria to add to the list.

HR1.F Develop sustainable development and green building guidelines for rehabilitation, retrofitting, and adaptive reuse of historic resources. Identify incentives to encourage property owners to utilize these guidelines.

(Also see the Community Design Element, Topic Area 1)

topic area
1 PROTECTED HISTORIC RESOURCES

HR1.G Continue to develop and implement downtown design guidelines and/or standards to protect historic buildings and guide façade changes.

HR1.H Regularly update the Historic Resources Inventory to ensure that is includes a current list of historic structures in the city.

HR1.I Incorporate the preservation of historic resources into a citywide urban design plan.

HR1.J The City shall retain a qualified architectural historian, preservation architect, or preservation planner to assist with development of any neighborhood or citywide design standards, guidelines, or form-based codes that will be implemented in or adjacent to historic areas, e.g., the Downtown Commercial District, or adjacent to historic buildings.

HR1.K Require that rehabilitation or restoration of historical resources be done according to the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Preservation, Rehabilitation, Restoration, Restoration, and Reconstruction of Historic Buildings.

topic area
2 HISTORIC RESOURCES AWARENESS

Policies

HR2.1 Strengthen public awareness of and support for the preservation and protection of the City's historic resources, while improving community access to information about local Native American history.

HR2.2 In cooperation with Native American Research and Historical Preservation Society, improve community access to information about Native American life.

Implementing Actions

HR2.A Expand community awareness about the value of historic preservation in order to build support among property owners and developers for the preservation and adaptive reuse of historic and cultural resources.

HR2.B In cooperation with the St. Helena Historical Society, develop a public education and awareness program to keep the community abreast of historic resource issues through a variety of programs, such as self-guided walking tours, home and garden tours, speakers' series, and other public events. Through this program the Historical Society could work with owners of historic structures to install plaques outside structures to increase public awareness and community pride.

HR2.C Improve community access to information about available historic preservation funding sources and related resources. Provide information about sensitive ways to incorporate sustainable materials and design practices into historic rehabilitation projects.

HR2.D Conduct a survey of historic resources to determine different architectural types in the City and develop design guidelines specific to style and period.

chapter seven

community design

7 community design

The Community Design Element contains policies and actions that guide the quality and character of St. Helena's built environment.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

7.1 Purpose of the Element

The Community Design Element presents a framework of policies and implementing actions that integrates directly with other General Plan elements in determining the quality and character of St. Helena's built environment. In particular, this Element relates to the Land Use and Growth Management Element by setting forth a vision for the form, character, and appearance of the community. It also correlates directly with the implementation of policies and actions included in the Circulation, Open Space and Conservation, Parks and Recreation, and Historic Resources elements. By respecting established neighborhoods and historic assets, this Element provides guidance to preserve St. Helena's distinct history and rural small-town character, while promoting new approaches to enhance future public and private development.

The Community Design Element includes the following sections.

- **7.2 Rural Community Character in St. Helena**. Identifies rural community character, architectural details and neighborhoods (p. 7-3).
- **7.3 Key Findings**. Identifies key findings based on an existing conditions analysis and extensive community outreach (p. 7-9).
- **7.4 Goals** Defines overarching goals to guide policies and implementing actions (p. 7-13).

- **7.5 Policies and Implementing Actions**. Identifies policies and implementing actions to ensure high-quality, sustainable and community-oriented design and construction and protect community character (p. 7-15).

7.2 Rural Community Character in St. Helena

Community character can be defined in a number of ways but is often reflected in the physical form of the built environment and its relationship to the natural environment. A community's street pattern; the relationship of its buildings to streets; the location and design of its public spaces; and the architectural styles and landscape elements that characterize buildings, residences and open spaces are often collectively referred to as "community design."

Community design is a visual representation of the character of a place, which evolves over time based on the lifestyle preferences of its residents and the public and private decisions that shape the human landscape. Community design in St. Helena clearly embodies and celebrates the rural character of the city. It can be best understood by exploring its architectural typologies and details, the identity and character of its many neighborhoods, and its rich agricultural heritage.

Downtown's historic character provides a sense of place for the City.

AGRICULTURE, OPEN SPACE, PARKS, AND RECREATION

The rural feel and abundant open spaces in and around St. Helena are very important design elements that contribute to the overall character of the community. Parks, greenways, vineyards, and other spaces surround the city and are interspersed throughout its neighborhoods, providing space for recreation and passive activities, natural areas, plazas, flood conveyance, and agriculture. This

7 community design

Agricultural uses in and around the City contribute to its character.

network of open space provides a distinct connection to the City's agricultural heritage.

Agriculture and viticulture have influenced the nature of the surrounding landscape perhaps more than any other land use or economic activity. As a result, existing expanses of vineyards and agricultural lands — including "fingers" of green that reach into the urban environment — play a central role in maintaining the rural experience and a distinctly historic sense of place for City residents and visitors.

The City's Urban Limit Line is an instrumental policy tool for maintaining clear definition of the rural/urban edge and preserving the City's adjacent open spaces. Green spaces and vineyards within the Urban Limit Line also contribute to the rural environment, ensuring St. Helena's agrarian heritage remains elemental to the character of the City, both inside and surrounding the city. Parks and other open spaces also contribute to this effect.

GATEWAYS, EDGES, AND VIEWS

Gateways, edges, and views throughout St. Helena create a sense of the city's rural character. Public views of the surrounding hillsides, Mount St. Helena,

vineyards, and older agricultural buildings provide valuable visual connections that strengthen the community's identity. Views are especially significant where agriculture is located along street edges.

Similarly, entries into the city provide important gateways that help establish

St. Helena's sense of place. These gateways not only announce entry into the city, but also lend significance to the area. The northern gateway to the city from State Route 29, referred to as the "Tunnel of Elms," is attractive, with large, landmark trees lining the road. Historic winery structures and residences add character to this important city gateway. The southern entry is less pronounced, with service commercial uses, parking, and limited landscaping adjacent to the highway.

St. Helena's residential neighborhoods are often characterized by multiple architectural typologies along a single street.

ARCHITECTURE AND URBAN DESIGN

The concentration of well-preserved buildings in downtown St. Helena is important in establishing the City's historic character. Many of the historic masonry and wooden structures built from stone, brick, and timber and located along Main Street between Spring and Adams streets, were constructed during the city's second major period of growth in the late 19th and early 20th centuries. European settlement of the Napa Valley during this period was fueled by the arrival of Italian and Swiss immigrants, many of whom were trained stonemasons and quarrymen. These early settlers skillfully carved Napa County's colorful volcanic rocks and used local timber to build barns, houses, fences and bridges. The architectural details of these structures, such as brick dentils, medallion insets, and window fenestration, lend character to the community just as do the materials from which they were constructed.

The character of St. Helena's residential neighborhoods is defined by a range of Pre-Prohibition-era housing styles. Multiple architectural typologies can be found along a single street, which contributes to neighborhood character. Common residential architectural typologies include American Queen Anne, American Craftsman, California Bungalow, and vernacular farm houses. Later

styles found in St. Helena include ranch-style homes and a variety of neo-eclectic architectural styles based on a combination of traditional shapes and details from different periods. Overlapping themes among both historic and modern homes include large, open-air porches supported by various interpretations of the basic column, and deeply overhanging eaves supported by exposed rafters or ornamental brackets.

Similar to many western cities, St. Helena's historic street pattern and layout is characterized by a traditional grid pattern, with variances that result from the intersection of railroad lines, creeks and regional roadways. As St. Helena grew during the latter part of the 20th Century, a modified street pattern developed with wide curvilinear streets, cul-de-sacs, and fewer bicycle and pedestrian connections. Future development presents an opportunity to enhance street, bicycle, and pedestrian connectivity, in part by using the city's historic grid street pattern.

RESIDENTIAL NEIGHBORHOODS

The community is composed of twenty-four residential neighborhoods surrounding St. Helena's historic downtown, as mapped by the General Plan Update Steering Committee (GPUSC) and shown on Figure 7.1. Each of these neighborhoods are distinct in identity, characterized by design elements such as their street patterns, architectural typologies, landscaping, and other attributes that support St. Helena's sense of place.

St. Helena's residential neighborhoods include single family units on large, rural lots; single family units on typical neighborhood lots; and attached medium-density units, including townhouses, condominiums, and apartments. Various residential architectural styles can be found throughout the city neighborhoods that include favorable design components, such as front porches, abundant landscaping, and façade articulation. Streets within residential neighborhoods are generally tree-lined, equipped with sidewalks, and narrow enough to be comfortable for pedestrians and bicycles. However, some streets, such as Starr Avenue, would benefit from a median, planting berm, dedicated bike paths,

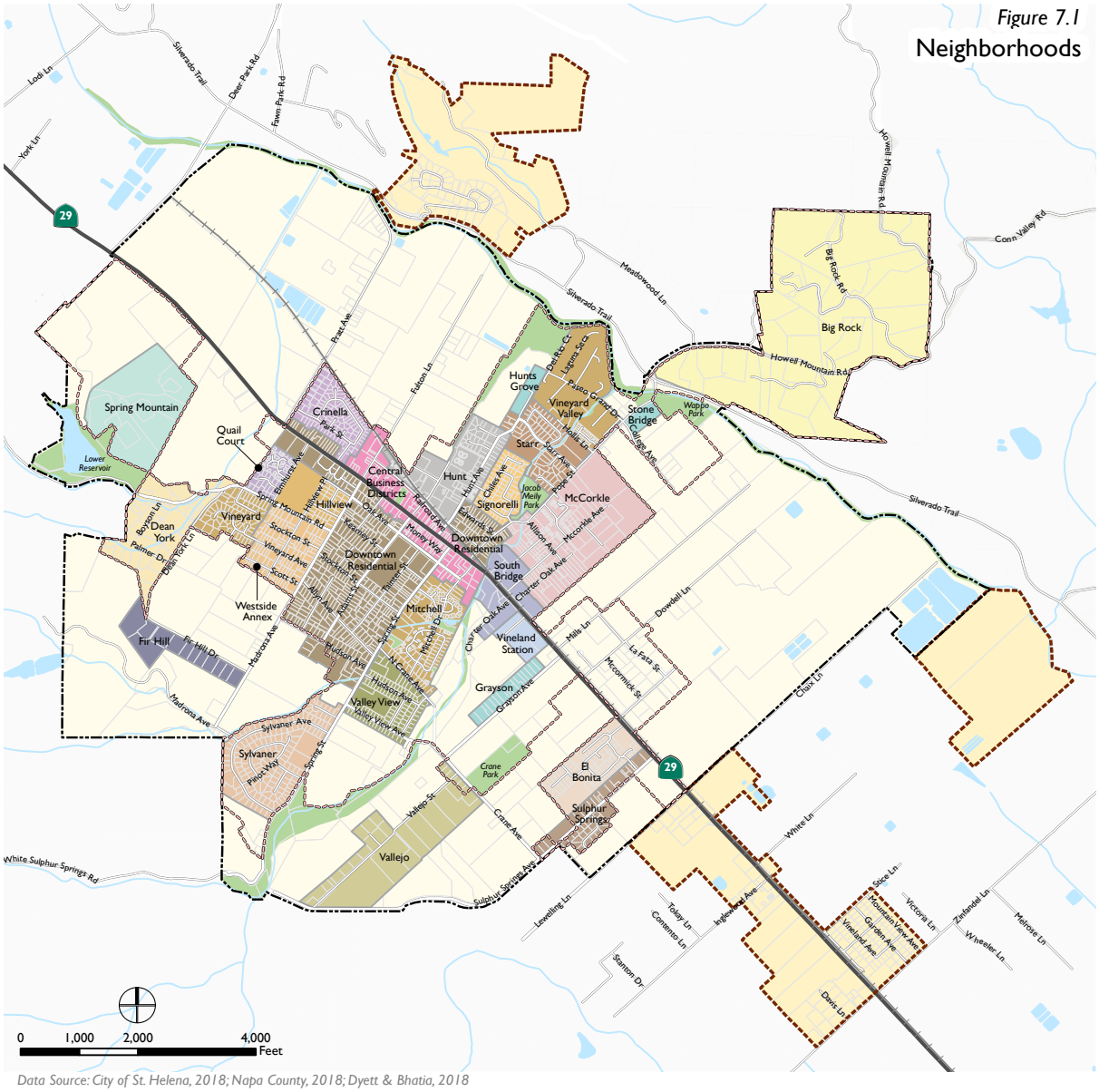
Residential neighborhoods possess unique identities and different types of architecture dating from various decades.

or other traffic calming strategies. Decorative fences are often used to establish the boundary between public and private spaces at the street level. These fences, more common in older neighborhoods, also create visual interest for pedestrians. Landscaping in the city's residential neighborhoods is also colorful and highly textured, which helps to further enhance the pedestrian experience.

Street patterns, an important component of the urban form that influence not only circulation and community access but also community layout and character, vary between neighborhoods in St. Helena. Neighborhood streets such as those in the Hillview and Westside Annex neighborhoods exhibit a traditional grid pattern, while the Big Rock, Fir Hill, and Vallejo neighborhoods have rural and semi-rural street patterns.

7 community design

Figure 7.1
Neighborhoods



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Neighborhoods
- Urban Limit Line
- Study Areas
- City of St. Helena
- Railroads
- Parks and Open Space
- Water Features

COMMERCIAL AND INDUSTRIAL AREAS

Commercial and industrial areas are located along Main Street and adjacent streets. The Central Business District (CBD), centered on Main Street, serves as the city's downtown and provides a variety of uses for residents and visitors. The CBD is characterized by historic buildings, an active pedestrian environment, street trees, and other key defining streetscape elements, such as historic streetlights and special sidewalk treatments. Other commercial and industrial areas are located along Adams Street, Main Street south of Sulphur Creek, and the areas surrounding Dowdell Lane and Vintage Avenue. In these service areas commercial, office, and industrial land uses are less intense and often include on-site parking. Streets are typically two-lane and have minimal streetscape amenities.

Commercial and industrial buildings should be distinct with varying roof lines and articulated facades.

7.3 Key Findings

There are several challenges and opportunities facing St. Helena related to community design. The following key findings are based upon comprehensive existing conditions analysis and community input.

- St. Helena's built environment is characterized by a compact and historic downtown, tree-lined neighborhoods, breathtaking agricultural landscapes, and a distinctive, early 20th century small-town character. By effectively guiding the built form of any potential new construction, the City can ensure that St. Helena preserves its unique qualities.
- St. Helena incorporates approximately 3,000 acres of land, of which 1,500 acres are located within the boundaries of the Urban Limit Line (ULL). The ULL helps define the city's character by focusing evolution and change in the central core. Careful, context-sensitive development of areas within the ULL can help the city retain its historic and agricultural character while accommodating well thought out growth in coming decades in order to protect the agricultural uses and rural quality of both the city and surrounding areas.

- St. Helena's historic downtown is cherished by residents and draws visitors from around the world. The city's Main Street features a variety of shopping and dining venues. Encouraging new commercial and mixed-use projects that complement the area's existing sense of place can enhance Main Street's character while creating uses to serve residents, visitors and businesses.
- St. Helena boasts a number of well-preserved older buildings along Main Street that help communicate the city's character to those entering or passing through town, particularly from the north. Key landmark buildings include the Starr, Galleron, Ritchie, Oddfellows, and Pritchard buildings. Preserving these structures and ensuring that new development complements their landmark status can help St. Helena maintain its unique character.
- Design Review is an important tool the City can use to continue to promote, ensure, and encourage new homes or remodels that reflect the scale, proportion, and/or building materials that characterize the surrounding neighborhood. Following design guidelines and/or form-based codes for remodels and new construction can ensure that remodeled or new residences complement existing neighborhoods and contribute positively to St. Helena's sense of place.
- Residential neighborhoods throughout the city possess unique identities and include types of architecture dating from various decades of the 20th Century and present day. Establishing a flexible set of design guidelines and/or form-based codes for specific areas can ensure that new development and remodels complement the distinct character of St. Helena's existing neighborhoods, while allowing for design innovation to accommodate modern needs and tastes.
- St. Helena's local character is strongly rooted in its agricultural heritage and location in the world-famous Napa Valley winemaking region. By highlighting the importance of key viewsheds and agricultural lands to the community's overall design, the City can maintain a strong visual connection to the essential role of agriculture in St. Helena's past and future.

CONCEPTS, TRENDS AND IDEAS

Adams Street Property Visioning Project

TOP *The site plan for the Adams Street Property includes key community objectives identified during the vision and land use alternatives processes.*

BOTTOM *The Adams Street property was identified as a good location for a farmer's market.*

In conjunction with the City of St. Helena's General Plan Update planning process, the City initiated the Adams Street Property Visioning project in October of 2008. The process included several stakeholder interview sessions, consultation with the General Plan Update Steering Committee, and two community workshops. The Adams Street property is a catalytic site with the potential to meet a range of the community's needs, including open space, housing and retail.

Building on the community vision and informed by economic feasibility analysis, the Adams Street Property Visioning exercise provided overall vision and specific design direction, establishing a framework for guiding future public and private developments on the site, as well as public improvements, such as community open spaces and streetscape enhancements.

Design characteristics outlined in the project exemplify many of the Community Design Element's policies and implementing actions, including new community gathering spaces, preserving important views, green buildings and infrastructure, and an emphasis on bicycle and pedestrian connections.

Detailed site master planning will occur when a specific development proposal comes forth for the Adams Street property.

7 community design

St. Helena's downtown demonstrates its historic character and unique sense of place.

- High-quality and sustainable design is an important component of the overall community design for St. Helena. Incorporating sustainable design practices into site layout, building design, landscaping, and public infrastructure is key to supporting projects that use less energy and water and have a smaller environmental impact. In addition, high-quality design contributes significantly to overall community design. Supporting sound construction practices and the use of high-quality materials will ensure long-lasting, well-built structures.
- St. Helena's Main Street is State Route 29, a major north-south thoroughfare that runs through the Napa Valley. Residents consistently cite heavy traffic as one of the most pressing concerns facing the City and highlight a need to ensure that community design efforts reduce auto-related travel in favor of alternate transportation modes. Creating a community design framework that enhances St. Helena's human scale can ensure that the city remains a comfortable, safe, and convenient environment for pedestrians, bicyclists and transit riders.

7.4 Goals

The goals of the Community Design Element are:

Respect St. Helena's Historic Character and Unique Sense of Place.
St. Helena is committed to enhancing and maintaining its existing community and agricultural character.

Promote a High-Quality and Sustainable Built Environment and Public Realm.
St. Helena is dedicated to maintaining an urban design framework that strengthens the physical form of the City by establishing a high standard of quality, context-sensitivity and ecological sustainability for the design, planning and construction of new and renovated structures, gateways, streets, public infrastructure, and public spaces.

Encourage Community Design throughout the City that Helps to Build Community.

Encourage Human Interaction and Support Non-Automobile Transportation.
St. Helena is committed to promoting community design that is human-scaled, comfortable, safe, and convenient for pedestrian, bicyclist, and transit use.

Strengthen the City's Neighborhoods to Retain Desirable Characteristics While Allowing for Smart Change and Evolution.

St. Helena recognizes the unique characteristics of individual neighborhoods and the potential for appropriate change within the context of a well-planned city. The City is committed to solving specific neighborhood problems and implementing neighborhood priorities to value enhance livability.

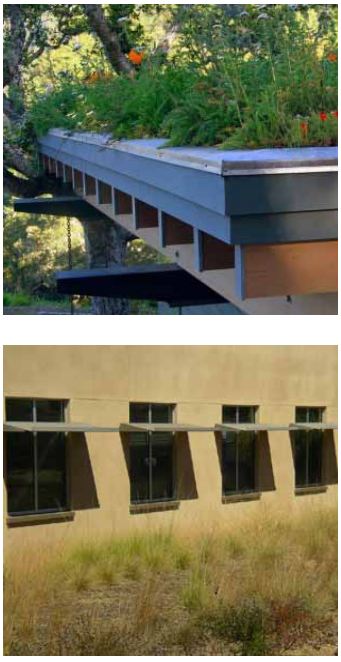
Green building and landscaping, such as green roofs and green stormwater infrastructure, should be incorporated into new development.

7.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. High-Quality and Sustainable Design;
2. Commercial and Industrial Areas;
3. Residential Neighborhoods;
4. Open Space;
5. Gateways, Edges, and Views; and
6. Street Pattern and Layout.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused. As the city changes and evolves, the following policies and actions will help guide new public infrastructure and private development in achieving sustainable, high-quality design.



Buildings should utilize native landscaping, passive heating and cooling, and green roofs.

topic area
1 HIGH-QUALITY AND SUSTAINABLE DESIGN

Policies

CD1.1 Ensure high-quality design and construction through a robust design review process.

CD1.2 Ensure the construction of sustainable buildings and landscaping in all public and private development projects.

CD1.3 Require construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive heating and cooling and energy generation, on-site water reuse, water efficient landscaping, and use of low-flow appliances, among others.

(Also see the Climate Change Element, Topic Area 2)

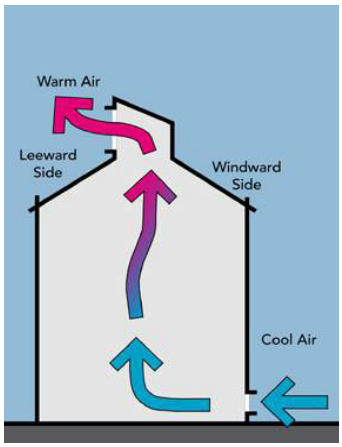
CD1.4 Strengthen water conservation measures for development or construction that result in significant reductions in local water use and the protection of local water resources.

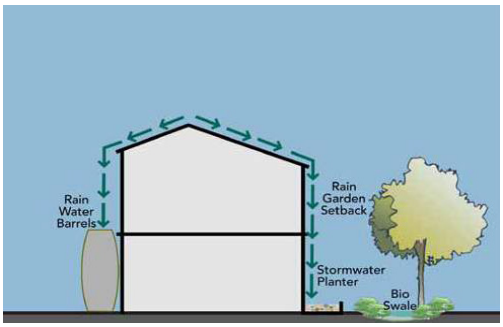
CD1.5 Require stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques such as bioswales and other best management practices to manage stormwater.

(Also see the Open Space and Conservation Element, Topic Area 3)

CD1.6 Encourage the adaptive reuse, rehabilitation, and retrofitting of historic buildings in which the original use is no longer feasible.

(Also see the Historic Resources Element, Topic Area 1)





Buildings should strengthen conservation measures and maximize passive heating and cooling.

topic area
1 HIGH-QUALITY AND SUSTAINABLE DESIGN

CD1.7 Promote the application of sustainable building practices to the preservation of historic resources.

(Also see the Historic Resources Element, Topic Area 1)

CD1.8 Require, to the extent feasible, that all new development include underground utilities to minimize their negative visual impact. In addition, funding sources to underground electrical lines shall be sought so the undergrounding of existing overheard lines can occur over time.

Implementing Actions

CD1.A Continue to implement the existing design review process for new development and remodels throughout the city. Create additional tools, including design guidelines and/or form-based codes, to inform decision-making and ensure high-quality, sustainable design that is compatible with and enhances community character. Consider formation of historic design review committee and/or policies.

CD1.B Adopt a Green Building and Landscaping Ordinance that establishes green building and landscaping site design standards customized to meet the unique climatic context of the community. Landscaping standards should limit impervious paving and identify standards and incentives that encourage the use of locally-propagated native, low-water, drought-tolerant planting, and integrated pest management practices.

CD1.C Partner with third party agencies, such as PG&E, to encourage the inclusion of energy-efficient systems in remodels and retrofits of existing buildings and residences.

CD1.D Consider offering incentives for improving energy-efficiency in existing buildings.

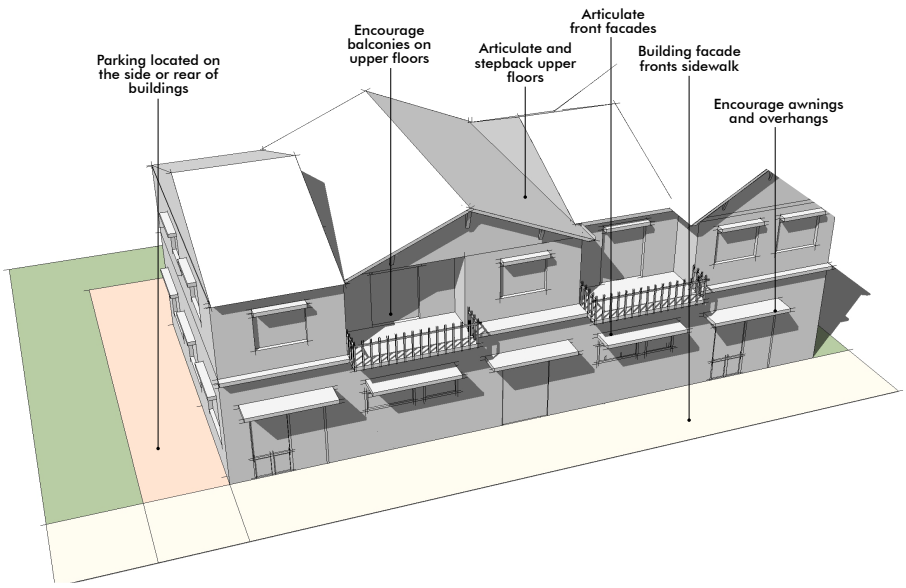
topic area
2 COMMERCIAL AND INDUSTRIAL AREAS

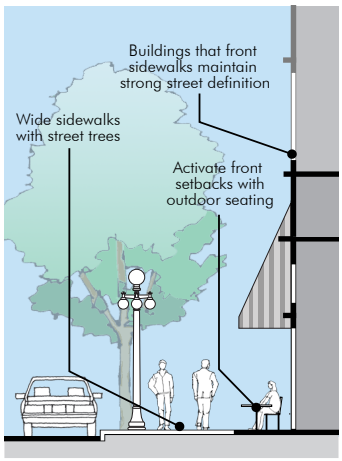
Policies

CD2.1 Maintain the character and identity of the downtown by emphasizing strong street definition, creating active front setbacks with outdoor seating, locating parking on the side and behind buildings, and maximizing entrances and transparency on building façades.

CD2.2 Within industrial and commercial areas outside downtown, maintain transitional zones as needed to protect public health and safety but allow flexible front setbacks while encouraging transparent and accessible front façades and parking on the sides and backs of buildings.

CD2.3 Encourage distinction within and between buildings by varying roof lines and articulating building facades.



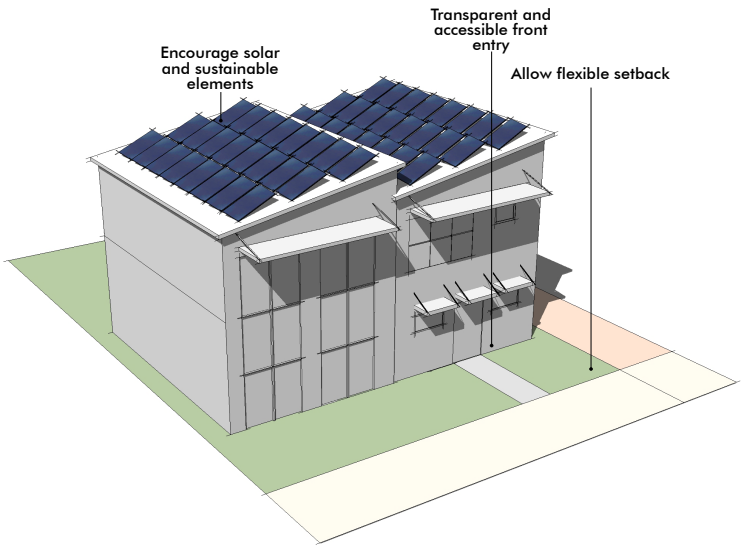


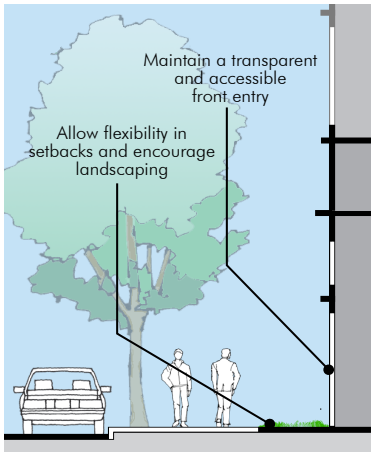
Central Business and Mixed-Use districts should emphasize strong street definition and active front setbacks with outdoor seating .

topic area
2 COMMERCIAL AND INDUSTRIAL AREAS

CD2.4 Ensure active and complete streets within commercial districts by providing sidewalk amenities, such as landscape buffers, berms, street trees, street furniture, outdoor dining, public art, signage, and wayfinding.

CD2.5 Encourage property owners to improve façades and landscaping surrounding existing buildings through the implementation of beautification programs.





Industrial uses should allow flexible front setbacks while encouraging transparent and accessible front façades.

topic area
2 COMMERCIAL AND INDUSTRIAL AREAS

Implementing Actions

CD2.A Develop and implement design guidelines and/or form-based codes, to provide oversight and guidance for new buildings and renovations.

(Also see the following elements: Land Use and Growth Management, Topic Area 3; and Economic Sustainability, Topic Area 3)

CD2.B Require street tree plantings along the commercial streets east of Main Street to reflect Main Street's existing planting pattern, in order to provide visual continuity and to create a pleasant pedestrian environment.

CD2.C Install attractive and well-designed community amenities such as public restrooms, drinking fountains, benches, bicycle racks, and trash and recycling containers in commercial districts. Ensure that community amenities are designed and installed to complement surrounding businesses and support the pedestrian-orientation of the street.

CD2.D Require businesses and structures to be of a scale commensurate with existing older buildings in the CB and SC land use areas.

CD2.E Adopt and implement façade and landscape beautification programs to provide assistance to owners of existing commercial and industrial properties.

CD2.F Explore the need for additional programs, such as commercial façade improvement programs and traffic calming incentive programs.

(See also the Circulation Element for policies and implementing actions related to traffic calming).

topic area
3 RESIDENTIAL NEIGHBORHOODS

Policies

CD3.1 Limit building envelope sizes and require adequate side and rear setbacks to preserve the character of existing residential areas and to avoid overbuilt lots. Require future development to conform to the pattern and density of the neighboring areas. In order to complement existing town character and protect against incursion into vineyard agricultural areas.

CD3.2 Ensure that new residential designs contribute positively to existing neighborhoods by complementing character and incorporating design features, such as front porches, façade articulation and stepbacks.

New development and remodeling should conform to the pattern and character of neighboring homes.

CD3.3 Encourage the use of landscaping and tree plantings as buffers between sidewalks and residential uses. Discourage the removal of existing trees and adopt more comprehensive tree preservation standards.

(See also the Open Space and Conservation Element for policies and implementing actions related to tree preservation).

CD3.4 Ensure safe bicycle and pedestrian-friendly character on all residential streets. Consider retrofitting existing wide residential streets, such as Starr Avenue, with landscaped medians, wide sidewalks, and adjacent Class I pedestrian and bicycle trails.

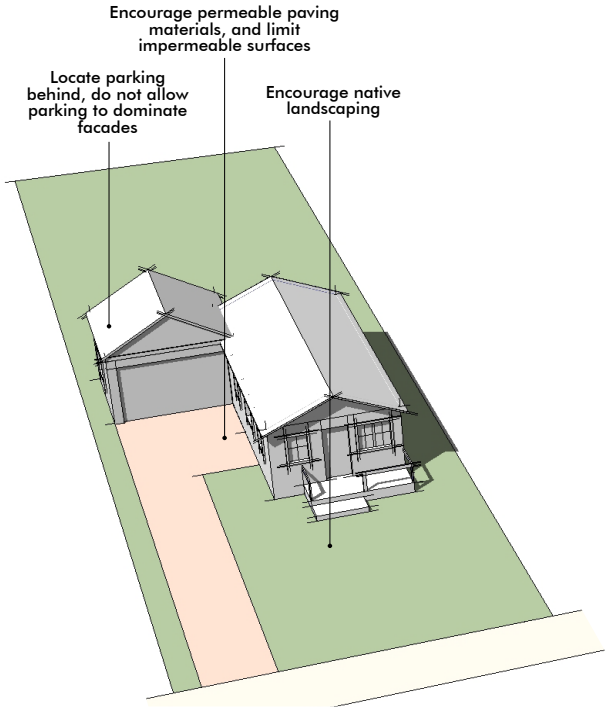
topic area
3 RESIDENTIAL NEIGHBORHOODS

Implementing Actions

CD3.A Develop and implement residential design guidelines and/or form-based codes, to provide oversight and guidance for new buildings and renovations.

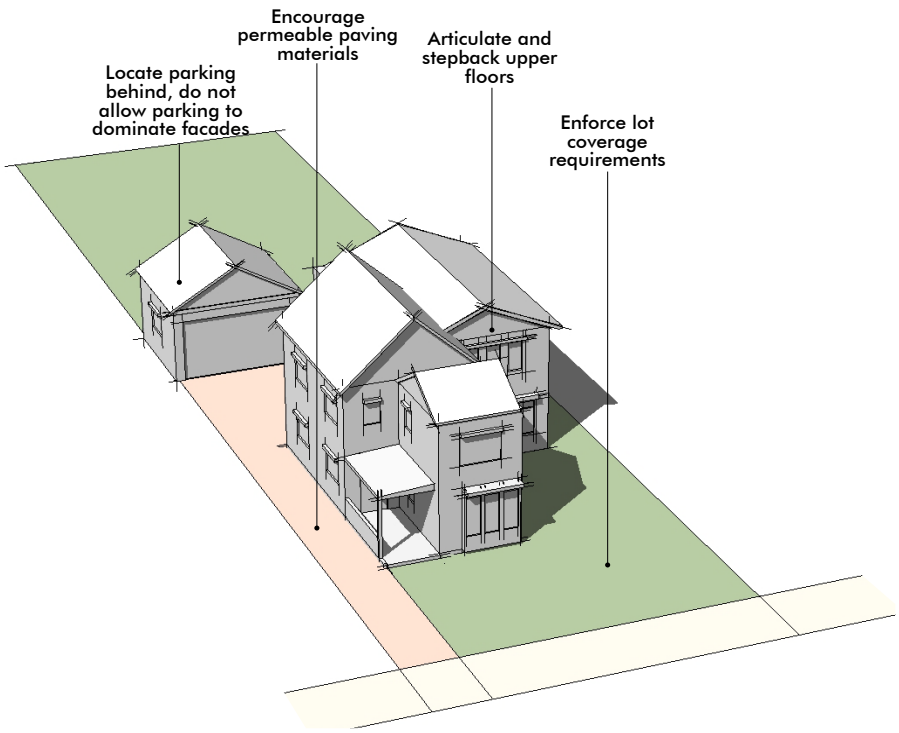
(Also see the Land Use and Growth Management Element, Topic Area 2)

CD3.B Review the existing ordinance language limiting lot coverage/floor area ratio according to parcel size in residential areas in order to preserve neighborhood character, reduce adverse view and shade impacts on existing homes, improve groundwater infiltration, and avoid overbuilt conditions. At the same time, care needs to be taken that any ordinance revision does not impair the ability to build second units on existing lots where appropriate.

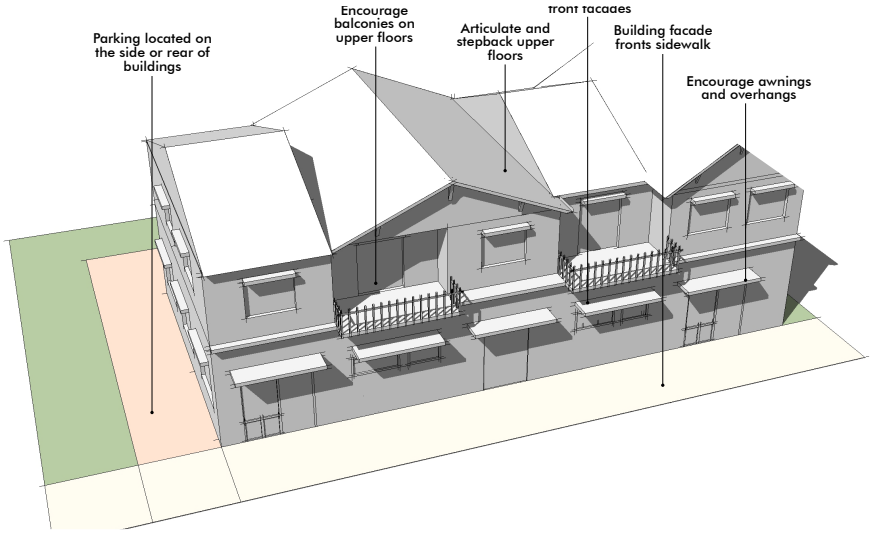


Low density residential.

topic area
3 RESIDENTIAL NEIGHBORHOODS



Medium density residential.



Higher density residential.

topic area
3 RESIDENTIAL NEIGHBORHOODS

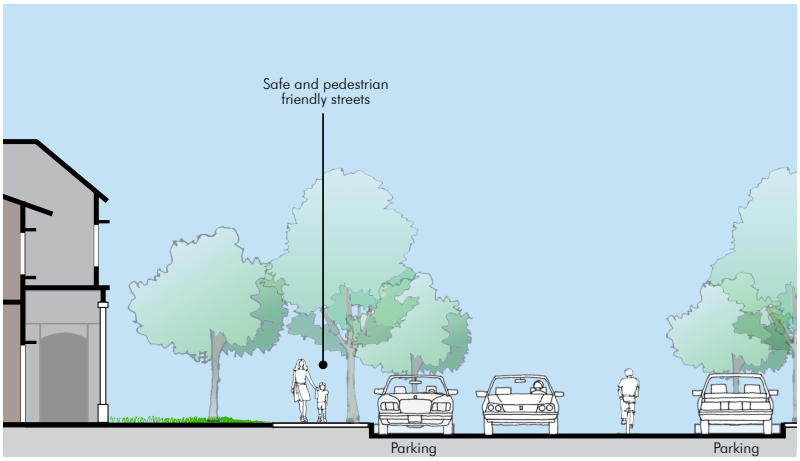
CD3.C Encourage the design and location of parking to minimize its appearance on front façades, locating it to the side or rear of the building, where feasible.

CD3.D Encourage property owners to install landscaping and tree plantings in front setbacks as a buffer between the sidewalk and residential uses.

CD3.E Require new development to include landscaping and street trees.

CD3.F Establish residential street guidelines that ensure a safe environment for families and children. Encourage traffic calming, street trees, wide sidewalks, and Class I or II bike lanes.

CD3.G Explore a reduction in parking requirements for residential uses that implement transportation demand management strategies, consistent with the parking management strategy articulated in the Circulation Element.



Encourage landscaping and street trees to create bicycle and pedestrian-friendly streets.

topic area
4 OPEN SPACE

Policies

CD4.1 Encourage the development of public spaces for formal and informal gatherings, such as plazas, seating and small performance areas.

CD4.2 Integrate open space, including parks, community gardens, natural areas, and agriculture into the community to strengthen the connection to St. Helena's agricultural heritage and provide a sense of openness.

CD4.3 Support agricultural and low-intensity uses beyond the Urban Limit Line.

(Also see the Land Use and Growth Management Element, Topic Area 1)

CD4.4 Integrate bicycle and pedestrian trails adjacent to open spaces to enhance connectivity throughout the city and the region.

(Also see the Parks and Recreation Element, Topic Area 6)

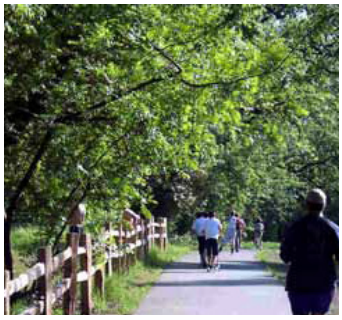
Plazas and community gardens are both examples of open space.

topic area
4 OPEN SPACE

Implementing Actions

CD4.A Require private development to incorporate appropriate public open space into site designs.

(See also the Parks and Recreation and Open Space and Conservation elements provide additional goals, policies and actions related to open space).



Bicycle and pedestrian trails can be located adjacent to open spaces.

topic area
5 GATEWAYS, EDGES AND VIEWS

Policies

CD5.1 Preserve the visual and physical connection to agriculture by protecting views from streets, parks, and open spaces to vineyards, agriculture, and hillsides. Where new streets are extended adjacent to agriculture, encourage hillside, and vineyard views by maintaining agricultural activities at the road edge. Existing east and west entries should be maintained in their current appearance, protecting and improving views of vineyards and the surrounding hillsides wherever possible.

CD5.2 Use public streets or pathways to form the edge of developed areas, allowing views of open space from streets.

CD5.3 Ensure that key gateways into the City receive special, character-defining treatments and landscaping. Consider establishing landmark trees along the roads that serve as gateways to the City. New commercial development on Main Street south of the Sulphur Creek bridge should be carefully designed to provide an appropriate gateway in to the downtown area

CD5.4 Preserve and enhance the City's nighttime environment and quiet rural sounds of the night for residents and wildlife by limiting the negative effects of artificial lighting.

Visual and physical connections to agriculture and open space provide views and act as edges.

topic area
5 GATEWAYS, EDGES AND VIEWS

Implementing Actions

CD5.A Working with CALTRANS, design and install a landscaping treatment for the northbound (State Route 29 from Chaix Lane north to Sulphur Creek) and westbound (from Silverado Trail west along Pope, and any future roadway segment from the Trail to downtown) gateways into the city. Consider a tunnel of trees similar to those located at the northern gateway.

CD5.B Adopt a dark sky ordinance to preserve the City's rural character by limiting the negative effects of light pollution on wildlife and community aesthetics. Develop lighting design guidelines for new development that mitigate light pollution while ensuring adequate nighttime security.

CD5.C New development shall not result in significant light, glare, and noise that could affect residents, visitors, and wildlife. Lighting shall be shielded to reduce glare and shall be cast downwards. Outdoor lighting shall occur primarily for the purpose of security and safety. Upcast lighting shall be discouraged to minimize impacts on wildlife and to retain the agricultural ambience of St. Helena. All lighting shall conform to the Lighting Zone 2 requirements of Title 24 of the California Building Code.

CD5.D The City shall encourage the undergrounding of any new electrical lines required to serve new development. In addition, funding sources to underground existing electrical lines shall be sought so that undergrounding of existing overhead electrical lines can occur over time.

CD5.E The City shall investigate the possibility of designating all or a portion of State Route 29 that passes through the City of St. Helena as a scenic highway under the State's scenic highway program.

A tunnel of trees provides a verdant gateway into the City.

topic area
6 STREET PATTERN AND LAYOUT

Policies

CD6.1 Ensure a connected circulation system that maximizes pedestrian and bicycle connectivity.

CD6.2 Promote the inclusion of bicycle and pedestrian trails and bicycle lanes throughout the City, as well as connections to regional trail systems, such as the Napa Valley Vine Trail.

(Also see the Parks and Recreation and Circulation elements for additional policies and implementing actions relating to bicycle and pedestrian trails and amenities.)

CD6.3 Require streetscape design that maximizes bicycle and pedestrian usage by providing safe and appropriately lit streets.

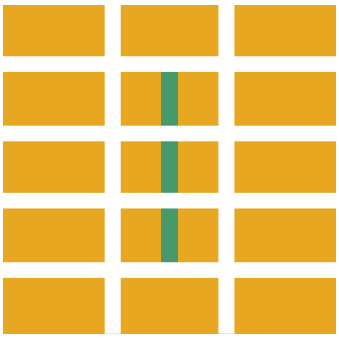
Streetscape design that promotes safety and connectivity for bicyclists and pedestrians.

topic area
6 STREET PATTERN AND LAYOUT

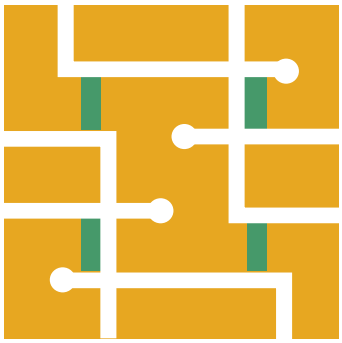
Implementing Actions

CD6.A Facilitate the safe and efficient flow of pedestrian, bicycle and vehicular traffic. Enhance and frame views of the hills and surrounding agricultural lands; and incorporate appropriate traffic calming features to support and complement the neighborhood environment.

(See also the Circulation Element for goals, policies and actions related to street connectivity).



Acceptable: Traditional connected street pattern.



Acceptable: Connected bicycle and pedestrian street pattern.

Not Preferred: Disconnected street pattern.

chapter eight

open space and conservation

8 open space and conservation

Open Space is a critical component of St. Helena's character.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

8.1 Purpose of the Element

The Open Space and Conservation Element presents a framework for governing future decisions about how St. Helena will sustain open space and natural resources for today's residents, as well as future generations. It aims to protect, maintain, and enhance St. Helena's natural resources and open spaces, while balancing community needs with conservation to benefit the common good.

The Open Space and Conservation Element includes the following sections.

- **8.2 Open Space and Natural Resources in St. Helena**. Identifies key open space and conservation areas and resources in St. Helena (p. 8-3).
- **8.3 Key Findings**. Identify key findings based on an existing conditions analysis and extensive community outreach (p. 8-16).
- **8.4 Goals**. Defines overarching goals to guide policies and implementing actions (p. 8-20).
- **8.5 Policies and Implementing Actions**. Identifies policies and implementing actions to protect the City's natural areas and resources and expand and maintain a comprehensive open space and parks system (p. 8-21).

As a complement to the City's Open Space and Conservation Element, the Parks and Recreation Element includes detailed descriptions of existing parks and recreational facilities, as well as policies and implementing actions related to their programming and improvement.

The Sulphur Creek corridor is a primary open space resource for St. Helena.

8.2 Open Space and Natural Resources in St. Helena

St. Helena enjoys a rural setting that includes a wealth of natural resources, providing the foundation for an open space system that can fulfill multiple functions, supporting the community's health, safety, recreation, and natural environment.. Within its city limits, there is a mix of agricultural uses, urban development, and wooded hillsides along with a diverse array of vegetation communities, including aquatic, grassland, chaparral, oak woodland, riparian woodland, coniferous forest, agricultural croplands, and developed lands (Figure 8.1). The most significant stands of native vegetation, in terms of size and variety, occur on the heavily forested hillsides on the east and west sides of town. Some of the most important wildlife resources within the city are found along the Napa River and its two tributaries, York Creek and Sulphur Creek. Although agricultural and urban development have encroached on these riparian corridors as St. Helena has grown, the corridors still provide habitat for stands of large trees and a variety of plant, animal, and aquatic species.

TABLE 8.1: Biotic Communities and Associated Land Cover Types

Land Cover Type	Natural Communities	Acres
Annual Grass	California Annual Grasslands Alliance	51.78
	Upland Annual Grasslands & Forbs Formation	
Blue Oak Woodland*	Blue Oak Alliance	69.74
Blue Oak-Foothill Pine*	Foothill Pine Alliance	3.13
Chamise-Redshank Chaparral*	Chamise Alliance	5.29
Coastal Oak Woodland*	California Bay-Madrone-Coast LIve Oak - (Black Oak Big - Leaf Maple) NFD Super Alliance	78.07
	Coast Live Oak Alliance	
Douglas-Fir	Douglas-fir Alliance	127.63
Eucalyptus	Eucalyptus Alliance	5.95
Lacustrine	Water	53.88
Mixed Chaparral	Leather Oak - California Bay - Rhamnus spp. Mesic Serpentine NFD Alliance	2.18
	Leather Oak - White Leaf Manzanita - Chamise Xeric Serpentine NFD Super Alliance	
Montane Hardwood*	Coast Live Oak - Blue Oak - (Foothill Pine) NFD Association	176.98
	Mixed Oak Alliance	

TABLE 8.1: Biotic Communities and Associated Land Cover Types (continued)

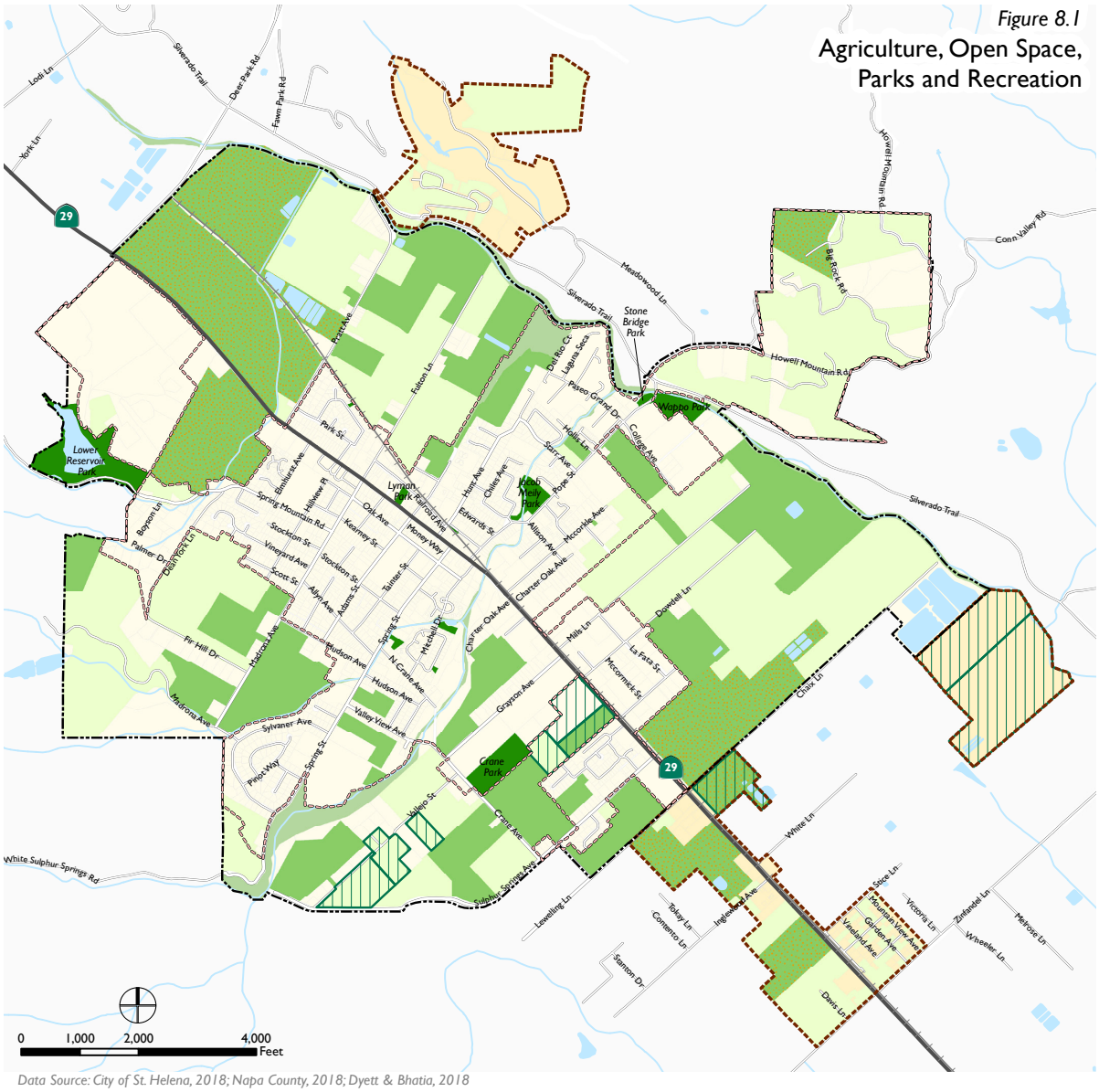
Land Cover Type	Natural Communities	Acres
Montane Riparian*	Mixed Willow Super Alliance	124.03
	Valley Oak - (CA Bay - Coast Live Oak - Walnut - Ash) Riparian Forest NFD Association	
	White Alder (Mixed Willow - CA Bay - Big Leaf Maple) Riparian Forest NFD Association	
Orchard-Vineyard	Agriculture	1315.19
Urban	Agriculture	1116.81
	Urban or Built-up	
	Vacant	
Valley Oak Woodland*	Valley Oak Alliance	5.19
Other	Non-native Woodland	8.40
Total		**3,144.25**

*Notes: *denotes sensitive natural community*
Sources: Napa County 2005, EDAW 2007.

St. Helena's diverse natural communities host a number of sensitive ecological and biological resources, including numerous special-status species, defined as plants and animals that are legally protected under the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. In total, there are seven special status plant species and seven special-status animal species known or assumed to be present within a 1-mile radius of St. Helena. Additionally, York Creek, Sulphur Creek, and the Napa River provide critical habitat for steelhead. Figure 8.2 shows critical habitat and special status plant and animal species occurring within a 1-mile radius of St. Helena. Table 8.2 lists critical habitat and special status plant and animal species occurring within a 1-mile radius of St. Helena, showing federal and State listing status.

8 open space and conservation

Figure 8.1
Agriculture, Open Space, Parks and Recreation

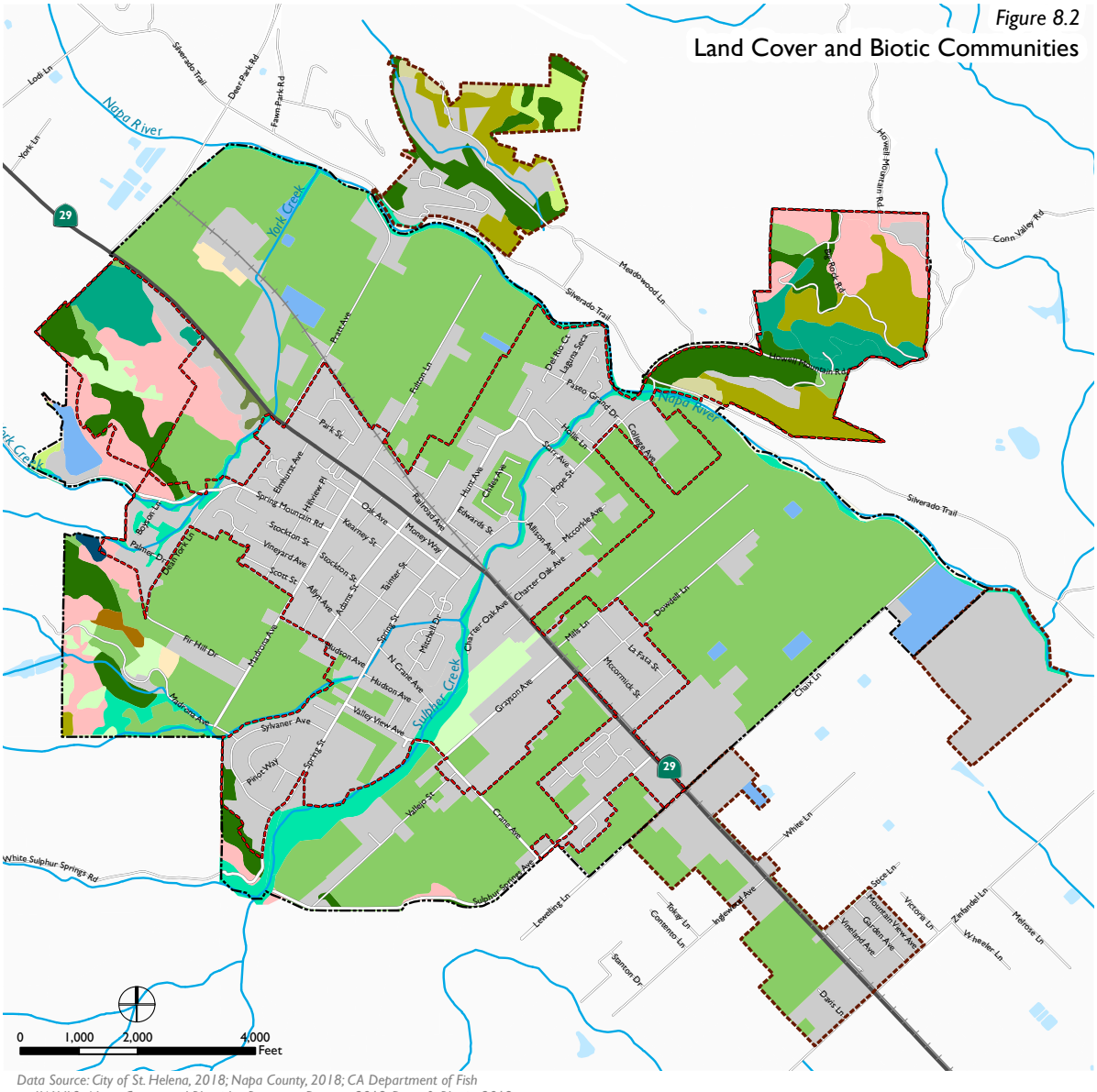


Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Parks and Recreation
- Open Space
- Existing Ag/Rural Residential
- Existing Agriculture
- Existing Winery
- Williamson Act Parcels
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Figure 8.2

Land Cover and Biotic Communities

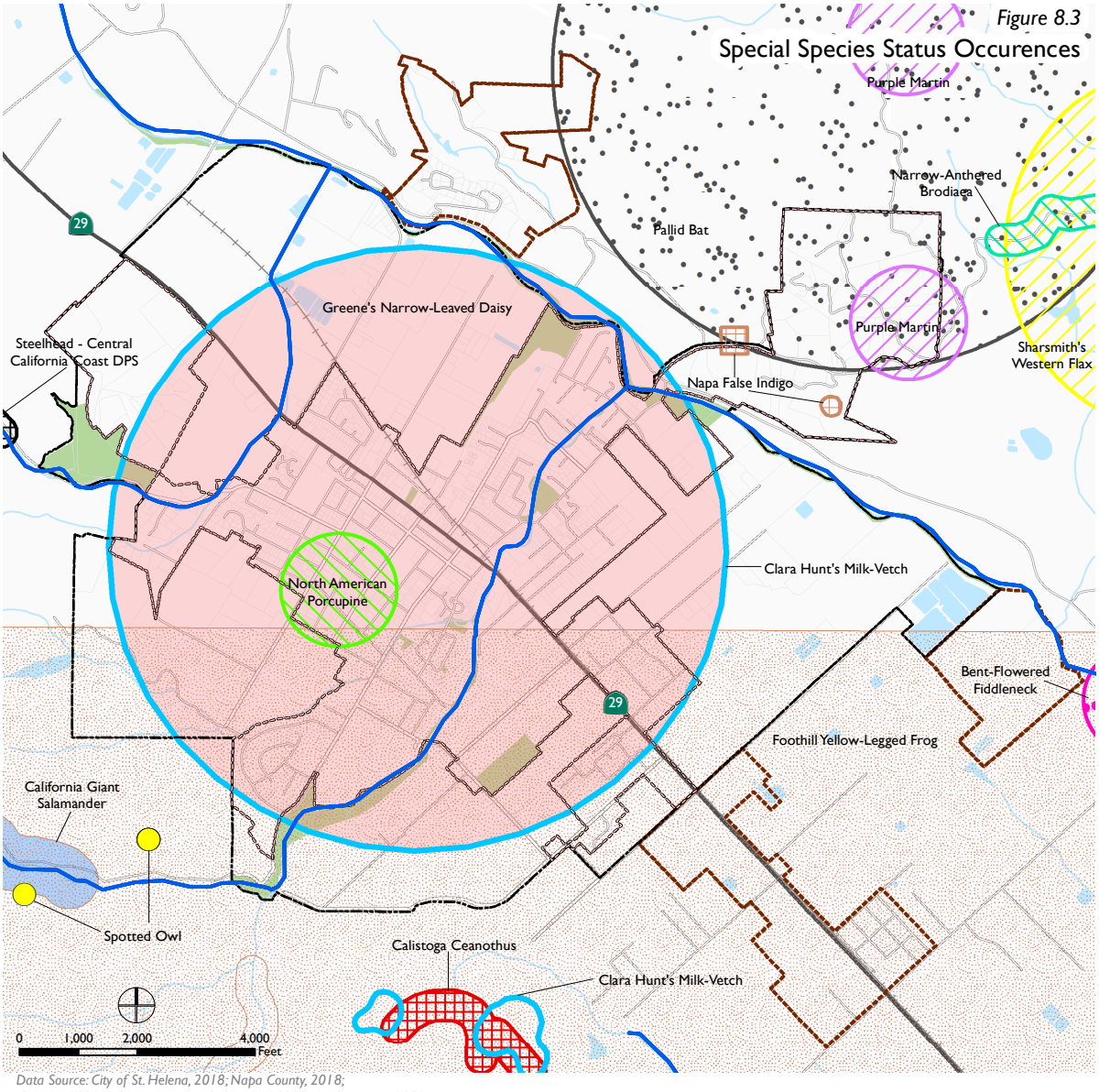


Data Source: City of St. Helena, 2018; Napa County, 2018; CA Department of Fish and Wildlife, Napa County and Blueridge Berryessa Dataset, 2018; Dyett & Bhatia, 2018

- Annual Grass
- Mixed Chaparral
- Chamise-Redshank Chaparral
- Orchard-Vineyard
- Blue Oak Woodland
- Coastal Oak Woodland
- Valley Oak Woodland
- Eucalyptus
- Montane Hardwood
- Blue Oak-Foothill Pine
- Douglas-Fir
- Urban
- Lacustrine
- Montane Riparian
- Unknown
- Railroad
- River/Creeks
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Figure 8.3

Special Species Status Occurences



Data Source: City of St. Helena, 2018; Napa County, 2018; CNDDB, 2018; U.S. Fish and Widlife Service, 2018; Dyett & Bhatia, 2018

Disclaimer: Information presented in this map is based on data from CNDDB verson 03/2018. Areas of occurence on this map represent areas in which known locations of the species listed here have been found as of the date of this version. There may be additional occurences of additional species within this area which have not been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special species occur in an area.

CNDDB can be contacted for more information about these occurences.

- Spotted Owl

Animal Species
- Foothill Yellow-Legged Frog
- Pallid Bat
- North American Porcupine
- Purple Martin
- Steelhead - Central California coast DPS
- Sharsmith's Western Flax
- California Giant Salamander

Plant Species
- Clara Hunt's Milk-Vetch
- Calistoga Ceanothus
- Napa False Indigo
- Sharsmith's Western Flax
- Bent-Flowered Fiddleneck
- Narrow-Anthered Brodiaea
- Greene's Narrow-Leaved Daisy

USFWS Critical Habitat
- Steelhead

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

GENERAL PLAN UPDATE
City of St. Helena

DYETT & BHATIA
Urban and Regional Planners

TABLE 8.2: Special-Status Plant Species Known to Occur or Potentially Occur in St. Helena

Plant Species		Status		
Common Name	Scientific Name	Federal Listing Category (USFWS)	State Listing Category (DFG)	California Native Plant Society Category
Clara Hunt's milk-vetch	*Astragalus claranus*	E	T	1B
Napa false indigo	*Amorpha californica var. napensis*	--	--	1B
Narrow-anthered California bodiaea	*Brodiaea californica var. leptandra*	--	--	1B
Rincon Ridge ceanothus	*Ceanothus confusus*	--	--	1B
Calistoga ceanothus	*Ceanothus divergens*	--	--	1B
Holly-leaf ceanothus	*Ceanothus purpureus*	--	--	1B
Sonoma ceanothus	*Ceanothus sonomensis*	--	--	1B
Narrow-leaved daisy	*Erigeron angustatus*	--	--	1B
Two-carpellate western flax	*Hesperolinon bicarpellatum*	--	--	1B
Napa western flax	*Hesperolinon sp. nov. "serpentinum"*	--	--	1B
Colusa layia	*Layia septentrionalis*	--	--	1B
Jepson's leptosiphon	*Leptosiphon jepsonii*	--	--	1B
Cobb Mountain lupine	*Lupinus sericatus*	--	--	1B
Marin checkerbloom	*Sidalcea hickmanii ssp. viridis*	--	--	1B
Marsh checkerbloom	*Sidalcea oregana ssp. hydrophila*	--	--	1B

Plant Species		Status		
Common Name	Scientific Name	Federal Listing Category (USFWS)	State Listing Category (DFG)	California Native Plant Society Category
Sonoma beardtongue	*Penstemon newberryi var. sonomensis*	--	--	1B
Green jewel-flower	*Streptanthus breweri var. hesperidis*	--	--	1B
Oval-leaved viburnum	*Viburnum ellipticum*	--	--	2

Notes: CNPS = California Native Plant Society; DFG = California Department of Fish and game; USFWS = U.S. Fish and Wildlife Service
Legal Status Definitions
Federal Listing Categories (USFWS):
E Endangered
T Threatened
State Listing Categories (DFG):
E Endangered
T Threatened
R Rare
CNPS Categories:
1A Plant species presumed extinct in California.
1B Plant species considered rare or endangered in California and elsewhere (but not legally protected under the ESA or CESA).
2 Plant species considered rare or endangered in California but more common elsewhere (but not legally protected under the ESA or CESA)
3 Need more information about this plant (review list)
4 Limited distribution (watch list)
Sources: California Natural Diversity Database (CNDDB) 2007, DFG 2007, USFWS 2007

TABLE 8.3: Special-Status Wildlife Species Known to Occur or Potentially Occur in St. Helena

Animal Species		Status	
Common Name	Scientific Name	Federal Listing Category (USFWS)	State Listing Category (DFG)
Invertebrates			
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	--
California freshwater shrimp	*Syncaris pacifica*	E	E
Fish			
Central Valley steelhead (distinct population segment)	*Oncorhynchus mykiss*	T, NMFS	--
Chinook salmon, Central Valley (fall/late fall-run evolutionarily significant unit)	*Oncorhynchus tshawytscha*	C, NMFS	CSC
Amphibians			
California red-legged frog	*Rana aurora draytonii*	T	CSC
Foothill yellow-legged frog	*Rana boylii*	--	CSC
Reptiles			
Northwest pond turtle	*Clemmys marmorata marmorate*	--	CSC
Birds			
Cooper's hawk	*Accipiter cooperii*	--	CSC
Sharp-shinned hawk	*Accipiter striatus*	--	CSC
Black swift	*Cypseloides niger*	--	CSC
Yellow warbler	*Dendroica petechia brewsteri*	--	CSC
White-tailed kite	*Elanu leucurus*	--	CSC
Bald eagle	*Haliaeetus leucocephalus*	T	CSC
Double-crested cormorant	*Phalacrocorax auritus*	--	CSC

Animal Species		Status	
Common Name	Scientific Name	Federal Listing Category (USFWS)	State Listing Category (DFG)
Purple martin	*Progne subis*	--	CSC
Northern spotted owl	*Strix occidentalis caurina*	T	CSC
Mammals			
Pallid bat	*Antrozous pallidus*	--	CSC
Pacific Townsend's big-eared bat	*Corynorhinus townsendii townsendii*	--	CSC

Notes: DFG = California Department of Fish and Game; USFWS = U.S. Fish and Wildlife Service
Legal Status Definitions
Federal Listing Categories (USFWS):
E Endangered
T Threatened
C Candidate
X Critical Habitat is designated for this species by USFWS
NMFS Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service
State Listing Categories (DFG):
E Endangered
T Threatened
CSC species of special concern
FPS Fully Protected Species
Sources: CNDDB 2007, USFWS 2007

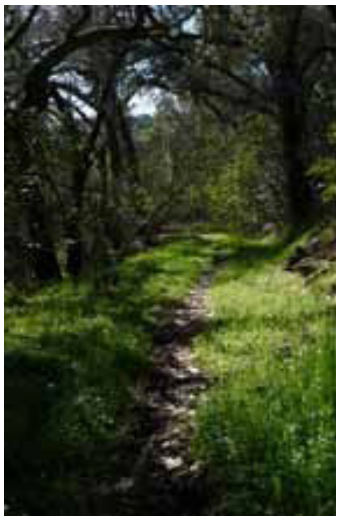
Riparian corridors along Sulphur Creek, York Creek and the Napa River support a wide range of wildlife species.

CONSERVATION OF NATURAL RESOURCES

Conservation of natural resources includes protections not only for the plants, trees, animals, fish, birds, and microorganisms present in the urban and natural environment around us, but also for the water, soil, habitats, and ecosystems that make up the ecological community in which we live. The richer the diversity of life around us, the greater the opportunity for healthy living, economic development, and adaptive responses to new challenges such as climate change.

Preserving and enhancing wildlife migration corridors in and around St. Helena is a critical consideration for natural resource conservation in the community, and it is directly related to the viability of local species. Open space areas and riparian corridors represent important opportunities for wildlife migration, including the movement of animals, birds, and fish. Key issues to address in conserving and protecting migration corridors include the loss of vegetative coverage; barriers such as fencing and linear transportation infrastructure; increased noise; and the presence of domestic animals.

8 open space and conservation



Developing a multi-modal trail network linking open space areas with the rest of the community would provide the community with many benefits.

OPEN SPACE FOR OUTDOOR RECREATION

St. Helena seeks to make full use of its open space resources to support public recreation while protecting the integrity of its natural habitats. The City envisions developing a comprehensive, integrated open space system that includes parks, trails and open spaces to serve the needs of residents and visitors. In particular, it also seeks to improve circulation and create opportunities for residents to walk and bicycle safely throughout the City by locating multi-modal trails along river, stream and other water corridors. These corridors are important open space amenities that can provide additional opportunities for public access and recreation.

Developing a multi-modal trail network along stream corridors can enable the City to increase the amount of open space acreage available to residents for outdoor recreation use. It can also provide opportunities to draw attention to the important role that the Napa River and its tributaries play in maintaining a high quality of life in the City. However, ensuring that these are designed and developed to protect critical riparian habitats and species is essential for the City to meet its long-term conservation goals.

The Open Space and Conservation Element contains goals, policies and implementing actions that seek to balance the City's commitment to protecting its natural resources with its desire to expand residents' access to open space amenities. As a complement to the City's open space and conservation policy framework, the Parks and Recreation Element includes detailed descriptions of existing parks and recreational facilities, as well as policies and implementing actions related to their enhancement moving forward.

HEALTHY HUMAN ENVIRONMENT

There are additional opportunities to both utilize and protect open space resources in St. Helena's developed commercial and residential areas. Street trees and urban forests increase habitat for local and migratory birds, contribute to improved air quality, and provide shade. Expanding efforts to maintain and increase street trees can support the City's broader conservation goals.

Water conservation and habitat protection concerns result from soil contamination generated by industrial, agricultural, commercial, residential, or other uses that produce or utilize hazardous substances. Incorrect handling or disposal of these substances can compromise St. Helena's water quality, particularly when stormwater runoff occurs on contaminated sites. By promoting the clean-up of contaminated sites, ensuring new projects have environmentally responsible stormwater runoff systems and development practices, and strengthening outreach efforts to educate the public about proper use and disposal of hazardous materials, the City can bolster its citywide conservation efforts and meet its long-term goals.

Shade, habitat and improved air quality are all benefits provided by a healthy urban forest.

8 open space and conservation

Protecting and enhancing St. Helena's open space resources is a key component of the City's General Plan Vision.

8.3 Key Findings

There are several challenges and opportunities facing St. Helena related to open space and conservation. The following key findings are based upon a comprehensive existing conditions analysis and community input.

- St. Helena enjoys a wealth of open space resources, ranging from wooded hillsides and cultivated agricultural areas to stream corridors.
- The Napa River and its tributaries are key components of the City's open space network. The corridors surrounding these waterways provide important wildlife habitat and play an integral role in the City's natural flood protection. The Napa River is considered an impaired water body under the Clean Water Act and the federal EPA has set Total Maximum Daily Load (TMDL) thresholds for pathogens and sediment to serve as the starting point or planning tool for restoring water quality. The San Francisco Bay Area Regional Water Quality Control Board has established corrective actions to address pollutant levels in the Napa River in its San Francisco Bay Basin Water Quality Control Plan. Preserving and protecting the Napa River, its tributaries and surrounding corridors is essential to maintaining these resources as healthy ecosystems, critical habitats and valuable open spaces.
- The City is undertaking the Upper York Creek Dam Removal and Ecosystem Restoration (UYCDR) project to improve habitat quality and connectivity for Central California Coast Steelhead and other aquatic species. Constructed in 1900, the dam is now out of service and is preventing access to upstream spawning and rearing habitat and limiting the natural sediment flow to Lower York Creek and the Napa River. The project involves cutting a 23-foot wide notch in the earthen dam to restore unimpeded creek flow and reduce the potential for future downstream habitat degradation and fish kills by preventing potentially detrimental sediment releases during summer low-flow conditions. The UYCDR is very important to the region and its completion has been a long-standing goal for ecosystem restoration and assistance for the threatened Central California Coast steelhead.

CONCEPTS, TRENDS AND IDEAS

Integrated Watershed Management

An integrated management strategy should be utilized to protect and enhance St. Helena's water resources.

An integrated approach to aquatic restoration and management is a complex and multi-faceted process that comprehensively addresses the health of a watershed. The goal of this approach is to incorporate the specific issues of a local jurisdiction within a framework of broader environmental planning priorities. An integrated approach relies on partnerships between cities, counties, state and federal agencies, and local environmental groups to achieve mutual restoration and management goals.

Key watershed restoration and management strategies for St. Helena can include the creation and implementation of plans and projects to enhance watershed functions that affect the animal, plant and human communities within the area's watershed. Planning efforts and projects should be designed to address issues that affect the overall health and quality of St. Helena's watershed, such as: water supply; water quality; water recycling; drainage and flood control; stormwater runoff; ecosystem preservation and habitat protection; point and non-point pollution sources; and recreation and public access.

The City's Comprehensive Flood Control and River Restoration Project, completed in 2011, is an example of the City's efforts to provide integrated watershed management practices. This multi-benefit project provided 100-year flood protection for an area of St. Helena that has been subject to periodic historical flooding, provided river restoration, and open space areas for the City. This project is discussed in the public health, safety and noise element.

8 open space and conservation

The recreation needs of the community can be met by developing a system of integrated parks and open space areas.

- St. Helena is located over the Napa Valley Groundwater Subbasin and receives approximately 23 percent of its water supply from groundwater. The subbasin is part of the Napa-Sonoma Valley Groundwater Basin and groundwater in the water-bearing aquifers ranges from approximately 50 to 300 feet below ground surface. The subbasin is recharged by rain, irrigation water, and percolation from some streams and tributary channels. Outflow from the subbasin occurs through pumping, discharge to surface water, springs, and evapotranspiration.
- A total of 46 percent of the City's incorporated area is designated as Agriculture, with most acreage actively cultivated with vineyards. In addition, 14 percent is designated as Woodlands and Watersheds, which contains some agricultural uses, mostly vineyards, on hillsides near the city limits. Preserving agricultural uses and protecting agricultural lands from urban encroachment are important steps to maintaining these highly productive and valuable open space resources.

- The community has expressed a strong interest in creating a system of integrated parks and open space areas that serve the recreation needs of residents and visitors.
- Trees are an important part of St. Helena's natural character. Trees cool streets and public spaces, help control erosion, improve air quality and add to the aesthetics of the community. Preserving the City's tree resources, while planting new trees will enhance the high quality of life enjoyed by residents.

Both agriculture and natural resource areas provide St. Helena with open space amenities.

8 open space and conservation

The open space areas of St. Helena include built elements like the historic Pope Street Bridge.

8.4 Goals

The goals of the Open Space and Conservation Element are:

Preserve, Enhance, and Restore Natural Resources.
St. Helena is committed to preserving, enhancing and restoring its abundance of natural habitat, wildlife, and open space resources.

Ensure Stewardship of Water Resources.
St. Helena is dedicated to promoting water conservation and ensuring its natural supply of water is properly managed and securely maintained, improving water quality.

Expand Sustainable Agricultural Practices.
St. Helena is committed to continuing and enhancing its agricultural traditions by promoting and reinforcing sustainable agricultural practices.

Create access opportunities to enjoy natural resources responsibly.

8.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Natural Habitat and Biodiversity;
2. Open Space;
3. Water Resource Protection and Conservation; and
4. A Healthy Living Environment

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

Sulphur and York creeks along with the Napa River support the majority of St. Helena's riparian vegetation.

topic area
1 NATURAL HABITAT AND BIODIVERSITY

Policies

OS1.1 Preserve and enhance St. Helena's riparian corridors for their value in providing wildlife habitat, biodiversity, natural drainage, and visual amenity.

OS1.2 Prohibit development, alteration, and/or removal of native vegetation from riparian areas. Disallow invasive species that degrade habitat quality.

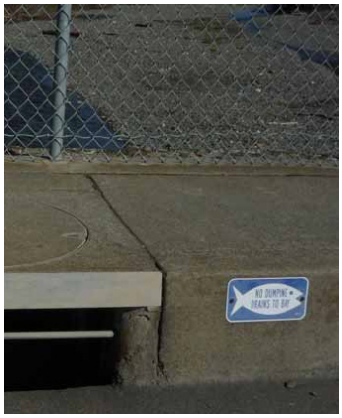
OS1.3 Protect and enhance contiguous corridors of riparian vegetation along the Napa River and its tributaries in order to support regional wildlife movement and enhance aquatic habitat.

OS1.4 Protect natural habitats that have the potential to support rare, endangered, or special-status wildlife and plant species. Control invasive species that degrade habitat quality.

OS1.5 Restrict development of hillside areas in order to protect wildlife, vegetation, viewsheds, and open space characteristics.

OS1.6 Manage invasive species that degrade habitat quality, especially along the Napa River and its tributaries.

OS1.7 Promote, encourage, and require sustainable agricultural practices that are sensitive to natural habitat and do not harm wildlife.



Signage programs can raise awareness about fragile natural systems.

topic area
1 NATURAL HABITAT AND BIODIVERSITY

Implementing Actions

OS1.A Develop and adopt an ordinance for the protection, restoration, and enhancement of creek corridors. The ordinance should consider the following:

- Establish setbacks for all new development projects to protect stream function and riparian habitat, while allowing for limited recreational uses and access to the stream corridor for maintenance and flood control;
- Limit use of herbicides and insecticides associated with aquatic toxicity in areas near and adjacent to creeks, and ensure best environmental management practices for all developments and industries;
- Provide access for creek maintenance and public use through easements and cooperative agreements with landowners;
- Establish sufficient buffer width adjacent to waterways to allow for wildlife habitats, trails, and greenbelts;
- Adhere to Living River Principles that allow the river to meander, maintain its natural floodplain and retain natural channel features to support continuous fish migration and the health of riparian corridors;
- Encourage the use of bioswales, off-stream detention ponds, and other green best practices for stormwater management;
- Implement an Integrated Pest Management ordinance that includes provisions to minimize the reliance on pesticides that threaten water quality and to require the use of integrated pest management in municipal operations; and
- Incorporate relevant actions and performance standards in TMDL implementation strategies for the Napa River to control discharges of pathogens and sediment.

OS1.B Restrict development on open space-designated parcels along Sulphur Creek west of the Crane Avenue Bridge. All development must be outside the stream corridor and structures must be set back from the creek's edge, consistent with California Department of Fish and Game standards. This does not preclude potential walking or multi-use trail development.

OS1.C Coordinate with the California Department of Fish and Game, the Living Rivers Council, the Regional Water Quality Control Board and other federal, State, and local regional agencies with regulatory authority for water quality,

CONCEPTS, TRENDS AND IDEAS

Living River Principles

The gift of a relationship to water is a historic public good and a natural right that was compromised during the last century. The recovery of water quality, natural riverbanks, public access, and recreational uses of our regional rivers and streams is good for the economy and our communities. It is an investment in the future.

1. All citizens should be able to have a direct relationship to water.

2. All rivers and streams should meet the water quality standard for swimming.

3. Rivers and streams should support an increasing diversity of plant and wildlife.

4. Each community should monitor and care for water quality in rivers and streams.

5. Upstream community water problems should not impact downstream communities.

6. Water problems should be solved at the source, addressing cause, not effect.

7. Public rights to waterways and wetlands should not be compromised by private interests.

8. Wetlands and streams should be treated as economic and ecological assets.

9. Wetlands and streams should not be lost, and should be restored where possible.

10. Public access to and from the water, and along the water's edge, should be restored.

11. Riverbanks should be preserved or restored to their natural form wherever possible.

12. Pre-industrial connections between water and communities should be restored.

13. Redevelopment should accommodate public access to water and riverbanks.

14. Redevelopment should restore community, culture, ecology and economy.

topic area
1 NATURAL HABITAT AND BIODIVERSITY

protected plant and animal species, and streams and wetlands to restore and maintain creek corridors.

OS1.D Coordinate with the County, the California Department of Fish and Game, and other regional agencies to augment water flow in the Napa River and its tributaries in order to enhance year-round fish habitat and minimize stagnation and pollution.

OS1.E Create a work plan for restoring sensitive habitat that has been degraded by agriculture or other past practices. Where applicable, encourage agricultural enterprises to participate in restoration efforts and in efforts to prevent further degradation.

OS1.F Create a set of guidelines for the protection of special-status species and sensitive natural communities. Guidelines can include appropriate survey methods consistent with the California Department of Fish and Game, the U.S. Fish and Wildlife Service, NOAA Fisheries, and CEQA requirements.

OS1.G Require a biological assessment of any proposed project site where species or the habitat is defined as sensitive or special-status by the California Department of Fish and Game, NOAA Fisheries, or the U.S. Fish and Wildlife Service might be present, including the installation of new wind turbines for alternate energy. Avoid potential impacts of sensitive resources as part of new development to the maximum extent feasible. Where complete avoid-

topic area
1 NATURAL HABITAT AND BIODIVERSITY

ance is not possible, the project applicant must secure any required authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is no net loss in habitat acreage or values.

OS1.H Require all proposed projects adjacent to a creek corridor or located in the city's hillside areas to submit a management plan for protecting natural habitats, including provisions to:

- Employ supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to keep the watersheds on steep slopes and along streams in good condition, and to provide shelter and food for wildlife
- Provide protection for wildlife habitat.

OS1.I Require new development to be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of natural plants, and sensitive wildlife habitat.

OS1.J Discourage and minimize the installation of deer fencing to maintain wildlife corridors and support regional wildlife movement.

OS1.K Require environmental review of new agricultural uses, including, but not limited to, farming, horticulture, floriculture and viticulture, animal husbandry, and livestock farming. The environmental review shall ensure that no sensitive biological resources would be adversely affected. Viticulture review must include the replanting of existing vineyards in accordance with County regulations.

topic area
1 NATURAL HABITAT AND BIODIVERSITY

OS1.L Discourage removal of trees for agricultural or other development in hillside areas. Ensure Woodlands and Watershed restrictions are followed.

OS1.M Encourage agricultural activities that incorporate best sustainable agricultural management practices, including participation in local programs such as the Napa Valley Vintners - Napa Green Program and the California Certified Organic Farmers certification program.

OS1.N Conduct a study to determine if the build-up of gravel in Sulphur Creek will result in a high risk of flooding. Limit development in Flood Hazard Areas using FEMA's 100-year flood zone regulations at a minimum, and inform property owners of existing developments so they are aware of flood risks and available State and Federal insurance opportunities. Ensure that implementation measures contribute positively to the preservation of the creek and its corridor.

OS1.O As part of new development, avoid disturbance to and loss of bird nests in active use by scheduling vegetation removal and new construction during the non-nesting season (September through January) or by conducting a preconstruction survey by a qualified biologist if vegetation removal and construction is initiated during the nesting season (February through August). Surveys for nesting birds will be conducted no earlier than 14 days prior to tree removal and/or breaking ground. In the event that nesting birds are found, the project applicant will consult with CDFG and obtain approval for nest-protection buffers prior to tree removal and/or ground-breeding activities. Nest protection buffers will remain in effect until the young have fledged.

OS1.P Avoid potential impacts on jurisdictional wetlands and other waters as part of new development to the maximum extent feasible. Where complete avoidance is not possible, the project applicant must secure any required authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is not less in habitat acreage or values.

The City of St. Helena should continue to develop relationships with State and Federal agencies to identify, fund and implement projects that increase the awreness of natural systems.

topic area
2 OPEN SPACE

OS1.Q Carry out the removal of the Upper Dam on York Creek sufficient to allow the passage of fish, especially Central California steelhead, a threatened species, and complete the restoration of historical fish habitat above the dam.

Policies

OS2.1 Maintain agriculture as the mainstay of the local economy by preserving agricultural lands as an invaluable and irreplaceable open space resource.

(Also see the Land Use and Growth Management Element for additional policies and implementing actions relating to agriculture.)

OS2.2 Preserve open space for mineral resources. Ensure compliance with State requirements in the preservation of known locations of mineral resources.

OS2.3 Preserve open space for recreational uses, including a bicycle and pedestrian trail system along creek corridors when compatible with riparian vegetation and wildlife habitat. Where possible, integrate stream corridors with trails and other recreational open space, provided that the vegetation, habitat value, and water quality is not significantly impacted.

OS2.4 Ensure convenient public access between developed areas and stream corridors by providing access at frequent intervals.

OS2.5 Limit public access to habitat areas when public access will significantly impact the sensitivity of the habitat area.

Bioswales are a great example of a low impact design element.

OS2.6 Support floodplain management strategies that ensure adequate open space for flood management consistent with Living River Principles, FEMA, and State requirements at a minimum.

(Also see the Public Health, Safety, and Noise Element for additional policies and implementing actions relating to flood management.)

Implementing Actions

OS2.A Update the bicycle and pedestrian master plans every five years to establish alignments for proposed trails, design standards, amenities, and phasing. Determine and pursue the appropriate funding mechanisms for initial improvements and the long-term maintenance of the trail system, such as a landscape assessment district, real estate transfer tax, transient-occupancy tax, or bond measure.

(Also see the following elements: Circulation, Topic Area 2 and Parks and Recreation, Topic Area 6)

OS2.B Adopt a land dedication ordinance that requires developers to provide land and improvements, such as trails and re-vegetation, along both sides of water corridors as a condition of subdivision approval for areas adjacent or in the vicinity of St. Helena waterways. The width of dedicated corridors should be established in consultation with the California Department of Fish and Game.

OS 2.C Pursue easements to open space areas that do not have adequate access for maintenance and management purposes.

topic area
3 WATER QUALITY AND CONSERVATION

OS2.D Provide for open space opportunities by including passive and active public recreation areas within projects as they develop.

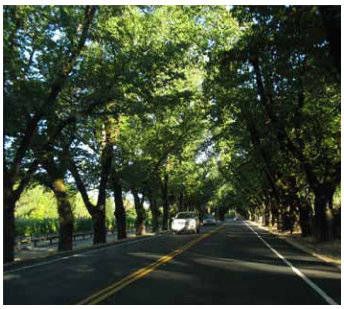
OS2.E Explore the possibility of public use or agricultural option of the waste-water treatment plant spray field in the form of trails and passive open space or other agricultural option.

topic area
3 WATER QUALITY AND CONSERVATION

Policies

OS3.1 Promote stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques to best manage stormwater through conservation, on-site filtration and water recycling, and ensure compliance with the National Pollution Discharge Elimination System (NPDES) permit.

OS3.2 Reduce stormwater runoff in developed areas to protect water quality in creeks. Incorporate sustainable low impact design features in the design of infrastructure.



St. Helena should strive to protect and enhance its natural resources.

Implementing Actions

OS3.A Manage stormwater runoff in compliance with the City's Stormwater and Runoff Pollution Control Ordinance, Stormwater Management Standards for Construction and Post-Construction, and the Development Manual Stormwater Standards, to ensure compliance with the City's NPDES permit. Implement a surface water quality monitoring program to evaluate the effectiveness of stormwater management program activities in reducing the discharge of pollutants to receiving waters to the maximum extent practicable.

OS3.B Prevent water pollution from point and non-point sources, including runoff from agriculture, through implementation of City-adopted best management practices in applicable permits, Total Maximum Daily Load (TMDL), and the Plan for California's Nonpoint Source Pollution Control Program. Continue to adopt new and more effective and efficient best practices and programs.

OS3.C Minimize stormwater runoff and pollution by encouraging low impact design features, such as pervious parking surfaces, bioswales, and filter strips in new development projects. The City should be a model for incorporating low-impact design elements as it implements streetscape and landscape improvements. In addition, the City should retrofit the existing public landscape with natural vegetative coverings or drainage systems that promote infiltration into

the ground that can help detain stormwater and reduce pollution attributable to runoff.

(Also see the Community Design Element, Topic Area 1)

OS3.D Maintain the City's water management program, a program for implementing water conservation efforts for households, businesses, industries, public infrastructure, and agricultural activities. This program should include the following measures:

- Identify building, plumbing, and landscaping standards and technologies that conserve water, especially; during water shortages;
- Implement standards that require low-flow appliances and fixtures in all new developments; and
- Encourage and model the use of drought tolerant and native vegetation in landscaping.

OS3.E Promote the installation of drought tolerant and native plants in landscaping throughout the city. Potential measures include:

- An education program that details water conservation measures for use in local landscaping;
- Working with local nurseries to encourage education, demonstration, and sales of drought tolerant and native plants and water-wise irrigation systems. *(Also see the Public Facilities and Services Element for additional policies and implementing actions relating to water conservation);*
- Require City parks and properties to be landscaped with drought tolerant native plants that allow for high shade capacity wherever possible and use water-wise irrigation systems as a model for residents and businesses.

(Also see the Public Facilities and Services Element for additional policies and implementing actions relating to water conservation).

OS3.F Provide appropriate permitting documents for project applicants requiring coverage under the Statewide National Pollutant Discharge Elimination System (NPDES) General Construction and Industrial Permits.

Policies

OS4.1 Protect and enhance tree resources in developed and undeveloped areas. Efforts should include: adequate maintenance of street trees, requiring replacement trees where existing significant trees cannot be saved, and requiring street trees as a condition of new development.

OS4.2 Encourage the clean-up of contaminated sites to protect the environment and public well-being.

OS4.3 Promote best management practices that encourage protection of soil, groundwater, and surface water resources from industrial, agricultural, and other uses that produce or dispose of hazardous or toxic substances.

Implementing Actions

OS4.A Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees. Key program aspects will include the following:

- A tree planting program to ensure that new trees are planted regularly;
- A tree maintenance program to ensure that existing trees are healthy and pruned;
- A tree inventory to create a comprehensive listing of the City's trees and tree-related needs;
- A Tree Committee to oversee the implementation of the urban forestry program and approval of tree removals;

- A landmark tree list that identifies trees that require additional protection from damage and/or removal; and
- Appropriate Heritage tree deed restrictions.

OS4.B Until implementation of the City-sponsored urban forestry program occurs, continue to use the Master Street Tree List as a guideline for all street tree plantings.

OS4.C Develop and adopt a Tree Ordinance for the purpose of protecting trees and identifying replacement trees. In coordination with an urban forestry program, existing, significant trees should be integrated into future development. In cases where existing trees cannot be saved, require the planting of replacement trees consistent with guidelines included in the Master Tree List.

OS4.D Explore the concept of establishing a City nursery program to enhance native species for preparation and planting throughout the city.

OS4.E Explore a citywide education opportunity for residents, businesses, industries, and agricultural uses to obtain information on pollution prevention, disposal of hazardous waste and chemicals, liability, and clean-up.

OS4.F Coordinate with County, State and federal agencies, as necessary, to identify the location and extent of contaminated sites in St. Helena.

chapter nine

public health, safety, and noise

9 public health, safety, and noise

The Public Health, Safety and Noise element identifies goals, policies, and implementing actions to minimize risks to life and property associated with natural hazards.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety, and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture, and entertainment

9.1 Purpose of the Element

The Public Health, Safety, and Noise Element presents a framework for minimizing risks posed by environmental and human-caused hazards that may impact St. Helena residents' health and welfare. The Public Health, Safety, and Noise Element aims to protect St. Helena residents, workers, and visitors from negative exposure to flooding, fires, hazardous materials, air pollution, and geologic and seismic hazards.

The Public Health, Safety, and Noise Element includes the following sections.

- **9.2 Public Health, Safety, and Noise in St. Helena.** Summarizes key issues related to the public health and safety of St. Helena residents, workers, and visitors (p. 9-3).
- **9.3 Key Findings.** Identifies key findings based on an existing conditions analysis (p. 9-23).
- **9.4 Goals.** Defines overarching goals to guide policies and implementing actions (p. 9-28).
- **9.5 Policies and Implementing Actions.** Identifies policies and implementing actions to minimize hazards and risks to life and property (p. 9-29).

9.2 Public Health, Safety, and Noise in St. Helena

St. Helena is surrounded by natural beauty, hillsides, vineyards, and waterways. While these natural features are great assets for the community, they can present risks due to flood, fire, geologic, and seismic hazards. In addition, human-caused risks, such as hazardous materials, air pollution, and unhealthy noise levels can also pose risks to community health and safety. Effective planning to prepare for and mitigate the adverse effects of these natural and human-caused risks can help ensure that St. Helena maintains a high level of safety for its residents, workers, and visitors. Following is a discussion of the various risks facing St. Helena and ways for the City to anticipate and manage potential impacts.

Low-lying portions of Napa Valley are prone to flooding.

FLOODING

The Napa River and some of its tributaries are prone to flooding, which poses a risk for people and structures in adjacent parts of the Napa Valley. The Napa River flows are largely influenced by precipitation. The peak flows generally occur in January and February. Some of the worst flooding in the immediate area of St. Helena has occurred in December and April, especially in and around the Vineyard Valley Mobile Home Park, which is near the confluence of Sulphur Creek and the Napa River. The area experienced significant flooding in 1986, 1995, 1997, and 2005 with extensive property loss.

Flood hazards also exist in the York Creek and Sulphur Creek Watersheds in St. Helena. During the 2005 New Year's Eve storm event, flooding from York Creek significantly impacted residential and industrial properties, including buildings located on the properties of Beringer Winery and the Culinary Institute. The Beringer water treatment plant flooded and ponds overflowed into the creek. In addition, the creek flooded vineyards on both sides of its corridor, downstream of State Route 29 to the Napa River.

Flood hazards in the Sulphur Creek watershed are due primarily to channel bed aggradation in the lower reach where gravel mining was historically conducted. Sulphur Creek continues to supply and deposit substantial amounts of sediment

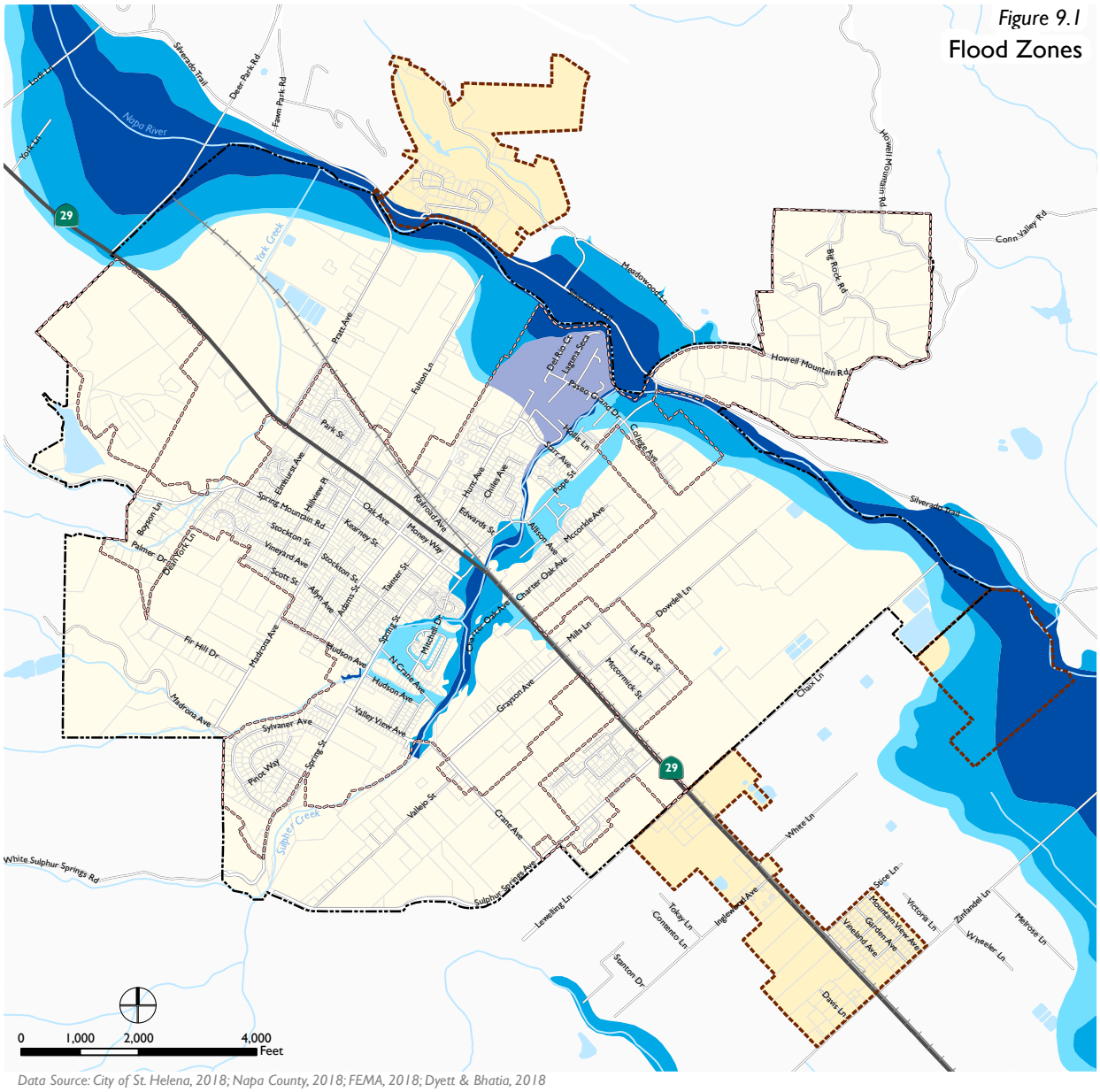
in this reach. Consequently, the increased volume of sediment currently stored in the channel decreases the volume available for floodwater, potentially causing an increased flood hazard locally and within the City of St. Helena. Further study needs to be done of the Sulphur Creek area in order to prevent future flooding and to protect habitat for steelhead and salmon.

Recently, the City collaborated with the Napa County Board of Supervisors and the Napa County Flood Control District to study the Napa River's hydraulics between Deer Park Road and Pope Street. The resulting study identified the need for an extension of the 100-year floodplain beyond the areas previously identified by the Federal Emergency Management Agency (FEMA). Figure 9.1 identifies areas that fall within the City's 100-year (one percent) and 500-year (0.2 percent) floodplain; as identified by the Federal Emergency Management Agency (FEMA) in 2018. Figure 9.2 includes areas in and around St. Helena that would be inundated in the case of dam failure.

COMPREHENSIVE FLOOD CONTROL AND RIVER RESTORATION

In 2011, the City completed a Comprehensive Flood Control and River Restoration Project north of the Pope Street bridge and on the west side of the Napa River. The purpose of this project was to protect residential property in the floodplain from the 100-year storm events and restoring the Napa River and its surrounding habitat. The project is designed to reduce flood risk to protect approximately 470 homes, including the Vineyard Valley Mobile Home Park and the Hunt's Grove Apartment Complex, that were located in a FEMA-designated flood zone prior to completion of the project. The project site was about 36 acres. The project planning began in 2000, with actual construction starting in May 2009. Phase I of the project consisted of construction of a levee, along with a storm drain bypass and other related infrastructure improvements. Phase II, the final phase of the project, included construction of a floodwall that is roughly eight feet high where it is anchored to the levee. The floodwall gradually reduces in height as it continues south along the Napa River to the confluence of the river and Sulphur Creek. It then turns to the west and continues along Sulphur Creek, terminating at

Figure 9.1
Flood Zones

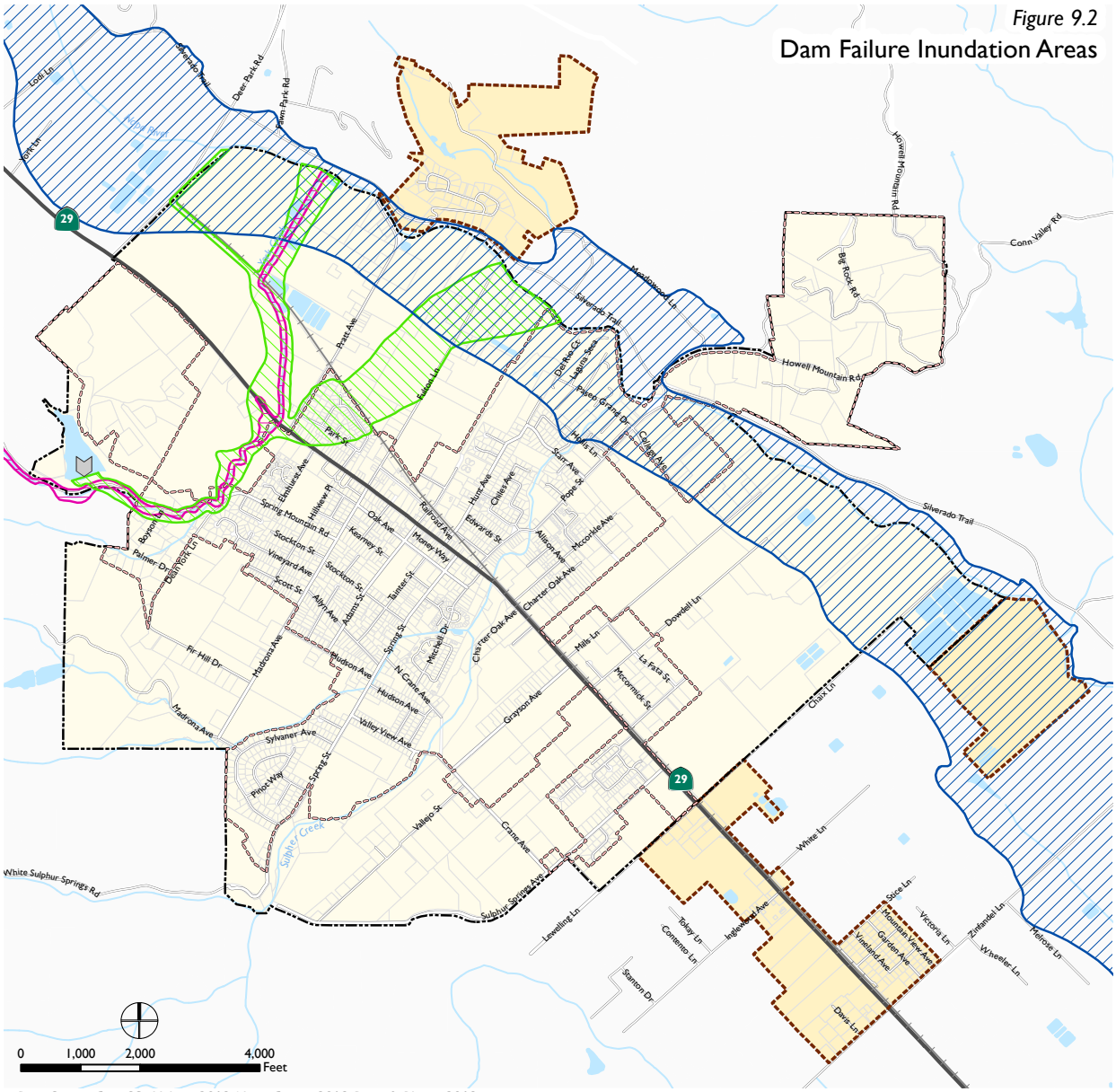


Data Source: City of St. Helena, 2018; Napa County, 2018; FEMA, 2018; Dyett & Bhatia, 2018

- Floodway
- 100-Year Flood Zone (1% Annual Chance Flood Hazard)
- 500-Year Flood Zone (0.2% Annual Chance Flood Hazard)
- Reduced Risk Areas due to Levee
- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Figure 9.2

Dam Failure Inundation Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

St. Helena Lower Dam

Dam Inundation Areas

Bell Canyon Dam

St Helena Lower Dam

St Helena Upper Dam

Railroads

Water Features

Urban Limit Line

Study Areas

City of St. Helena

Paseo Grand Avenue. The wall is about three and a half feet high at its terminus. The total project cost was about $32 million, with the cost of construction at about $9.1 million.

To balance the removal of land from the floodplain, the area known as "lower terrace B" was cut down significantly and widened to accommodate the large flood flows. In Phase II, this terrace was cut down to the level of the Napa River and is designed to carry significant amounts of flood water, should it become necessary.

The second half of this $9.1 million project is the continuation of the flood wall around Vineyard Valley and habitat restoration in the "upper terrace B." The habitat restoration was a critical element of the overall plan and included the installation 40,000 plantings and anchoring fallen trees into the terrace. This project also included maintenance conducted according to a maintenance plan, irrigation, and development of a pedestrian interpretive trail.

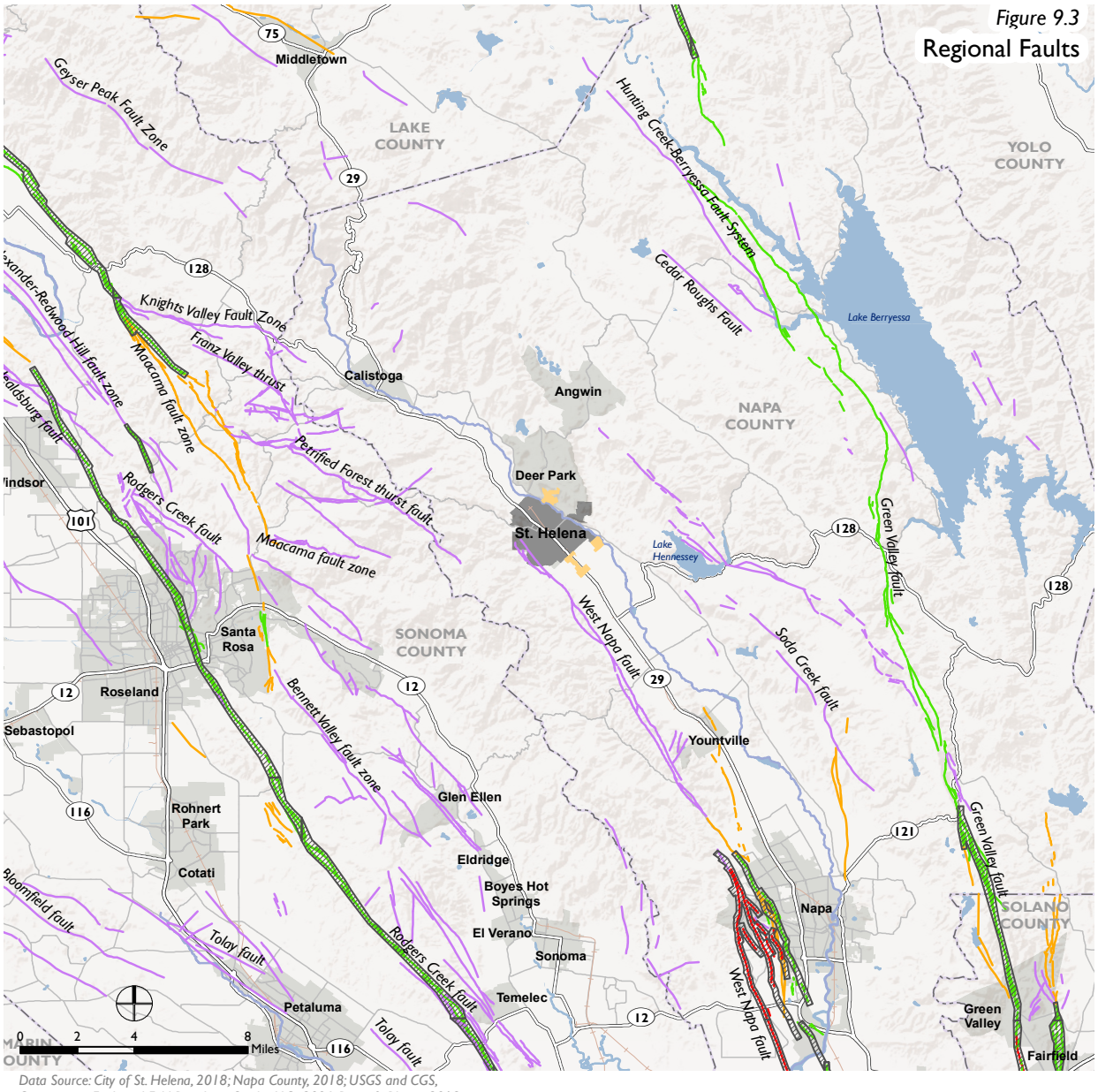
St. Helena has developed an Operations and Maintenance Manual for the Comprehensive Flood Control and River Restoration Project, which describes the extent of the project and outlines operation and maintenance activities that the City and Napa County Flood Control District will work together to manage. The manual describes project features, routine monitoring and maintenance activities, pump station operation, emergency operations, surveillance, personnel training, utility coordination and design.

In August 2014, a 6.0 earthquake struck the Napa Valley, with the epicenter of the quake approximately 6 miles southwest of the City of Napa. While damage from the quake was substantial in Napa, particularly in Napa's downtown area, St. Helena experienced very little to no measurable damage.

GEOLOGIC AND SEISMIC HAZARDS

Although St. Helena is located in a seismically active region, there are no known active faults located in the city *(see Figure 9.3)*. Faults are commonly considered to be active or likely to have another earthquake sometime in the future, if they have moved one or more times in the past 10,000 years. The California Geological Survey, the primary source of geologic information used for decision-making by California's government agencies, designates Alquist-Priolo Earthquake Fault Zones around the surface traces of active faults in the state and provides maps

Figure 9.3
Regional Faults



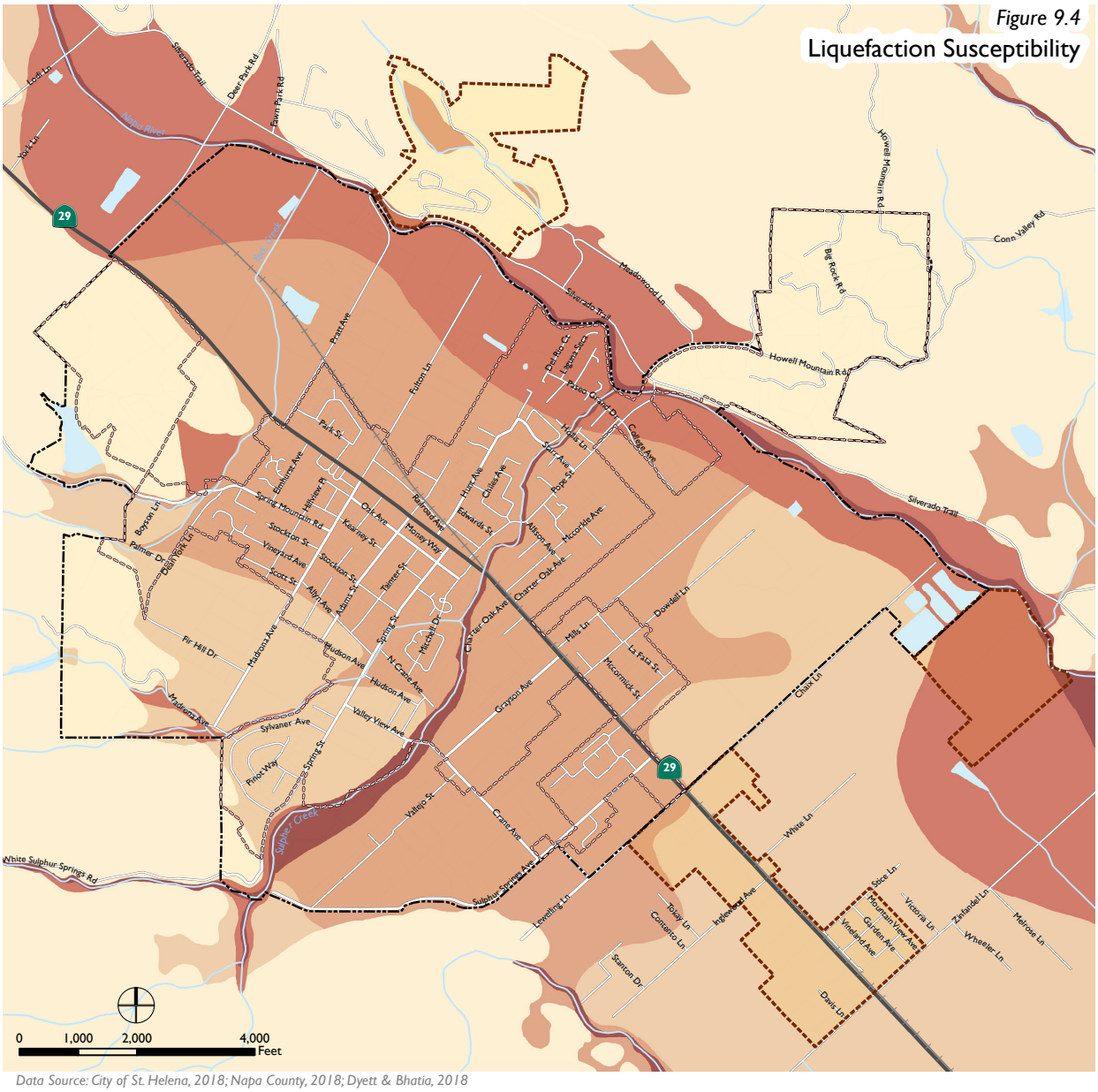
Data Source: City of St. Helena, 2018; Napa County, 2018; USGS and CGS, Quarternary Fault and Fold Database for the U.S., 2006; Dyett & Bhatia, 2018

Geologic Features
- Historic (<150 years)
- Latest Quaternary (<15,000 years)
- Late Quaternary (<130,000 years)
- Undifferentiated Quaternary (<1.6 million years)
- Alquist Priolo Fault Zones

- County Boundary
- Waterbodies
- City of St. Helena
- Study Areas
- Urban Areas
- Freeway/Major Highway
- Major/Minor Roads
- Railroads

Figure 9.4

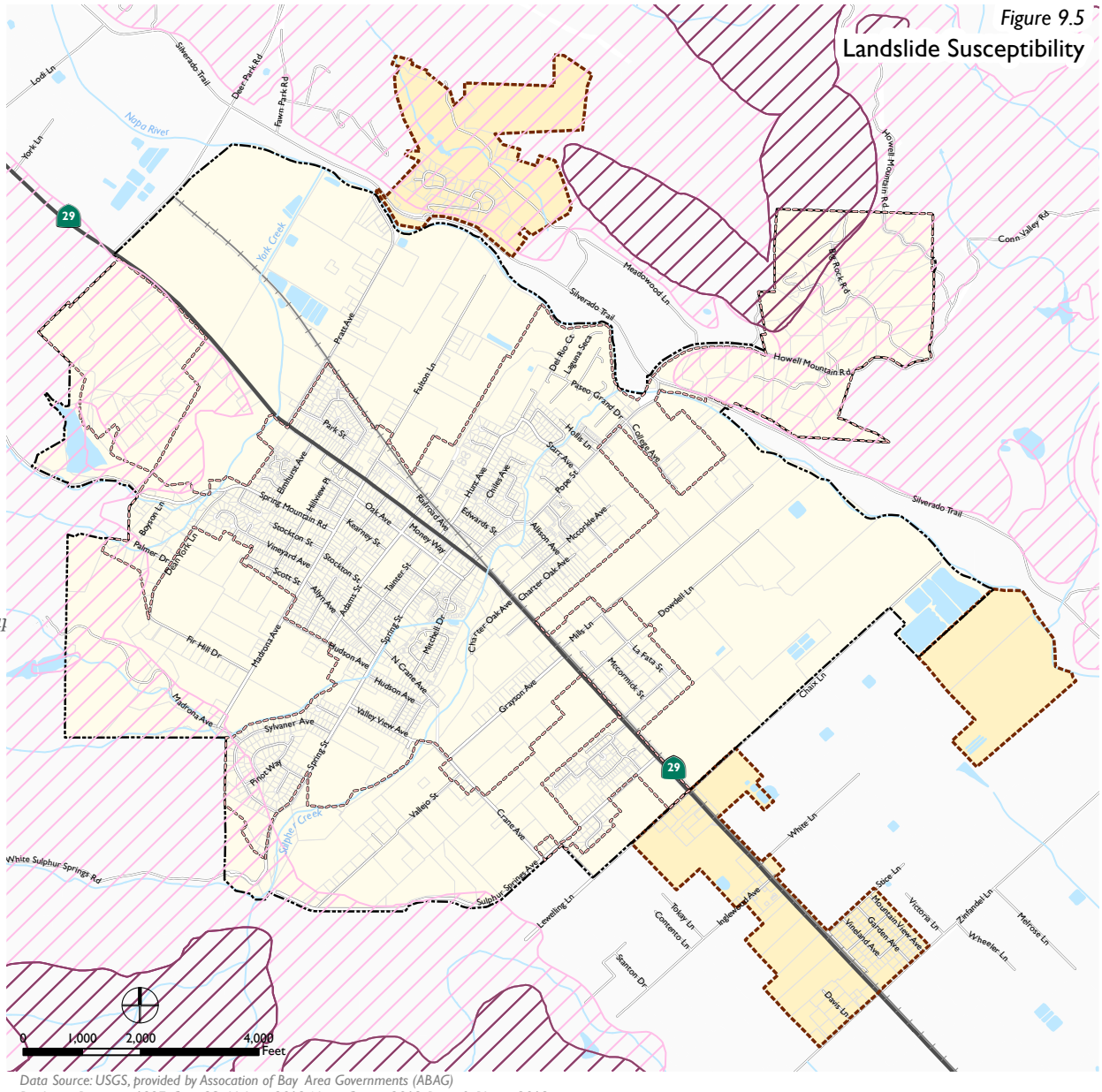
Liquefaction Susceptibility



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Very High
- High
- Medium
- Low
- Very Low
- Water
- Railroads
- Urban Limit Line
- Study Areas
- City of St. Helena

Figure 9.5
Landslide Susceptibility



Cap

Data Source: USGS, provided by Association of Bay Area Governments (ABAG) Resilience Program; 1997, City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Existing Landslide Distribution
- Mostly Landslide
- Few Landslides

- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Mostly Landslides - Consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides; defined by drawing envelopes around groups of mapped landslides.

Few Landslides - contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides; defined by drawing envelopes around areas free of mapped landslides.

for use in planning and controlling new or renewed construction so as to minimize associated risks. According to the most recent maps the nearest active faults to St. Helena are the West Napa Fault, located 14 miles to the south, and the Rodgers Creek Fault, located 13 miles to the west. Additionally, a number of unnamed, relatively small, older faults are located at the base of the Sonoma and Vaca mountains along the margins of the Napa Valley; however, based on available information, displacement of these faults occurred more than 10,000 years ago and as such these faults are not considered active.

Overall, the fault rupture hazard for the city is considered to be low, and the primary geologic hazards of concern are those that could result from excessive shaking effects stemming from earthquakes elsewhere in the region. For instance, a large earthquake event in the area could result in liquefaction in the city's low-lying areas *(see Figure 9.4*), and landslides and debris flow in areas with sloped, hilly terrain (*see Figure 9.5*). Development in the city's upland areas has often required the removal of trees and vegetation, leaving some hillsides susceptible to erosion and landslides during heavy rains. Actions available to the City to protect areas of the community at greatest risk and minimize the risks of injury and property damage include restricting development in the hillside areas and requiring prompt re-vegetation on slopes prone to instability. The use of best management practices during construction can also limit erosion and the risk of landslides. Employing earthquake engineering strategies in the design of buildings and structures, such as installation of earthquake drains or use of low mobility grouting and dynamic compaction during construction, can limit risks associated with liquefaction.

9 public health, safety, and noise

Air pollution from auto exhaust and dust, can pose health hazards among sensitive populations.

AIR POLLUTION AND HAZARDOUS MATERIALS

Mitigating the public health and safety risks caused by air pollution and hazardous materials will inevitably require changing human behavior. Air pollution resulting from auto exhaust, tobacco smoke, and fugitive dust creates unhealthy air conditions for residents and can pose a particular threat to sensitive populations, such as children and older adults. Implementing measures to reduce auto trips, tobacco smoke exposure, and construction-related fugitive dust can help St. Helena reduce residents' contact with air pollution. Compact development patterns, facilities to encourage walking and biking, and incentives to reduce automobile trips are just a handful of ways that St. Helena can help improve local air quality.

The Bay Area Air Quality Management District (BAAQMD) is the public agency responsible for regulating stationary sources of air pollution in Napa County and the San Francisco Bay Area. BAAQMD monitors air quality in the nine-county Bay Area and reports annually on pollutant concentrations for comparison to State and federal health-based ambient air quality standards. Data indicates that in the Bay Area, as throughout the state, the transportation sector and mobile sources of emissions are the most significant sources of air pollution. Senate Bill (SB) 375, approved by the Governor on September 30, 2008, seeks to reduce greenhouse

gas emissions—and, consequently, other pollutants—from mobile sources by integrating land use and transportation planning at the regional level. *(For a more detailed discussion of SB 375 and related opportunities see the Climate Change Element.)*

Hazardous materials used by local businesses are often transported on the City's roadways and found present in smaller quantities in private homes in the form of solvents, cleaning fluids, and other substances. Implementing policies to improve the safe use, transport, and disposal of these materials can be instrumental in avoiding environmental contamination and human health impacts.

NOISE

Noise is a sound which is unhealthy or unwanted. It can be a human-caused public health hazard which includes excessive, intrusive, or objectionable noises that disrupt daily life. Noise has been tied to physiological effects ranging from hearing loss, high blood pressure, and sleep disturbance, to communication interference and general interruption and annoyance of normal daily activities. Definitions of acoustical terms used in this discussion are listed in Table 9.1.

Land uses have different levels of compatibility relative to noise, and the State of

for the development of land as a function of a range of noise exposure values (see Table 9.2). Table 9-3 identifies interior noise standards.

The ambient noise environment throughout much of St. Helena is extremely quiet in comparison to typical urbanized settings, especially in the evenings and at nighttime. With the exception of Main Street (State Route 29) and major collector roadways, the noise environment can be characterized as being that of a quiet rural setting. Residential areas are generally shielded from traffic noise on highways, arterials, and collectors and register very low background sound levels.

Sleep disturbance and the annoyance of sound not only depend on the absolute sound level of a noise source but are related to the magnitude of the noise above that of background sound levels. This means that in particularly quiet rural environments, the control of extraneous, intrusive, and annoying noise sources is

TABLE 9.1: Definition of Acoustical Terms

Term	Definition
Decibel, dB	A unit describing the amplitude of sound. Equal to 10 times the logarithm to the base 10 of the ratio of two like quantities.
Sound Pressure Level (SPL)	10 times the logarithm to the base 10 of the ratio between the square of the sound to the square of the reference sound pressure of 20 µPascals. Sound pressure level is the quantity that is directly measured by a sound level meter and expressed in dB.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure is expressed in Hertz (Hz). Normal human hearing is between 20 Hz and 20,000 Hz.
A-Weighted Sound Level, dBA	The SPL in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes low frequency components of sound in a manner similar to the frequency response of the human ear and correlates well with subjective response to sound.
Noise	Unwanted or unhealthful sound.
Equivalent Noise Level, LAeq	The average A-weighted sound level during the measurement period. The A-weighted equivalent continuous sound level.
LAmax, LAmin	The maximum and minimum A-weighted sound level during the measurement period with the sound meter using fast-time-weighting.
LA01, LA10, LA50, LA90	The A-weighted sound levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, Ldn	The average A-weighted sound level during a 24-hour day, obtained after the addition of 10 decibels to levels measured at night between 10:00 pm and 7:00 am.
Total Sound	The composite of sound from all sources near and far.
Ambient Sound	The sound level measured in the absence of an intrusive or extraneous noise.
Intrusive Noise	That noise from a source of specific origin which intrudes above the existing background sound level. The degree of intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content as in contrast to the prevailing background sound level which exists in the absence of the intrusive noise.
Background Sound Level	The LA90 of the ambient sound. It represents the ever present lower sound level due to distant sources which are individually indistinguishable, and in the absence of the Intrusive or Extraneous Noise.
Extraneous Noise	Specific or distinguishable intermittent sound from nearby sources such as mechanical devices, leaf blowers, pumps, horns, sirens, barking, shouting, birds, wind and other similar individual sources, which don't normally exist on a continuous or regular basis.
Intermittent Noise	A noncontinuous sound consisting of a number of clearly distinguishable sound events of varying frequency and/or intensity.

TABLE 9.2: Noise Land Use Compatibility Guidelines

Land Use Category	Completely Compatible[1]	Tentatively Compatible[2]	Normally Incompatible[3]	Completely Incompatible[4]
Residential	< 55 dBA	55-60 dBA	60-75 dBA	> 75 dBA
Commercial/ Office	< 65 dBA	65-75 dBA	75-80 dBA	> 80 dBA
Industrial/ Agricultural	< 70 dBA	70-80 dBA	80-85 dBA	> 85 dBA
School, libraries, churches, hospitals	< 65 dBA	65-70 dBA	70-80 dBA	> 80 dBA
Playground, neighborhood park	< 67 dBA	67-70 dBA	70-75 dBA	> 75 dBA

a Expressed as Ldn or CNEL.
1. Completely Compatible – Specified land use is satisfactory, based on the assumption that any buildings involved are or normal conventional construction.
2. Tentatively Compatible – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems of air conditioning will normally suffice.
3. Normally Incompatible – New construction and development should generally be discourage. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must b made and needed noise insulation features included in the design.
4. Clearly Incompatible – New construction or development should generally not be undertaken.

TABLE 9.3: Maximum Interior Noise Level Criteria of Intermittent Noise for Public Use Facilities

Land Use	Maximum Intermittent Noise Level LAmax	Basis for Criterion
Concert Hall	25	Intrusion of noise may spoil artistic effect
Theater	30	Intrusion of noise may spoil artistic effect
School Auditorium	35	Minimize intrusion into artistic performance
School Classroom	55	Speech communication-20 ft.-raised voice
School Laboratory	60	Speech communication-6 ft.-normal voice
Church/Sanctuaries	45	Speech communication-50 ft.-raised voice
Library	55	Speech communication-3 ft.-normal voice

Source: Adapted from Table 2 in "Night Insulation Problems in Buildings," Paul S. Veneklasen & Associates, 1973; Noise Element of the Napa County General Plan, 1982.

Human-caused public health hazards include excessive, intrusive or objectionable ambient noises that disrupt daily life.

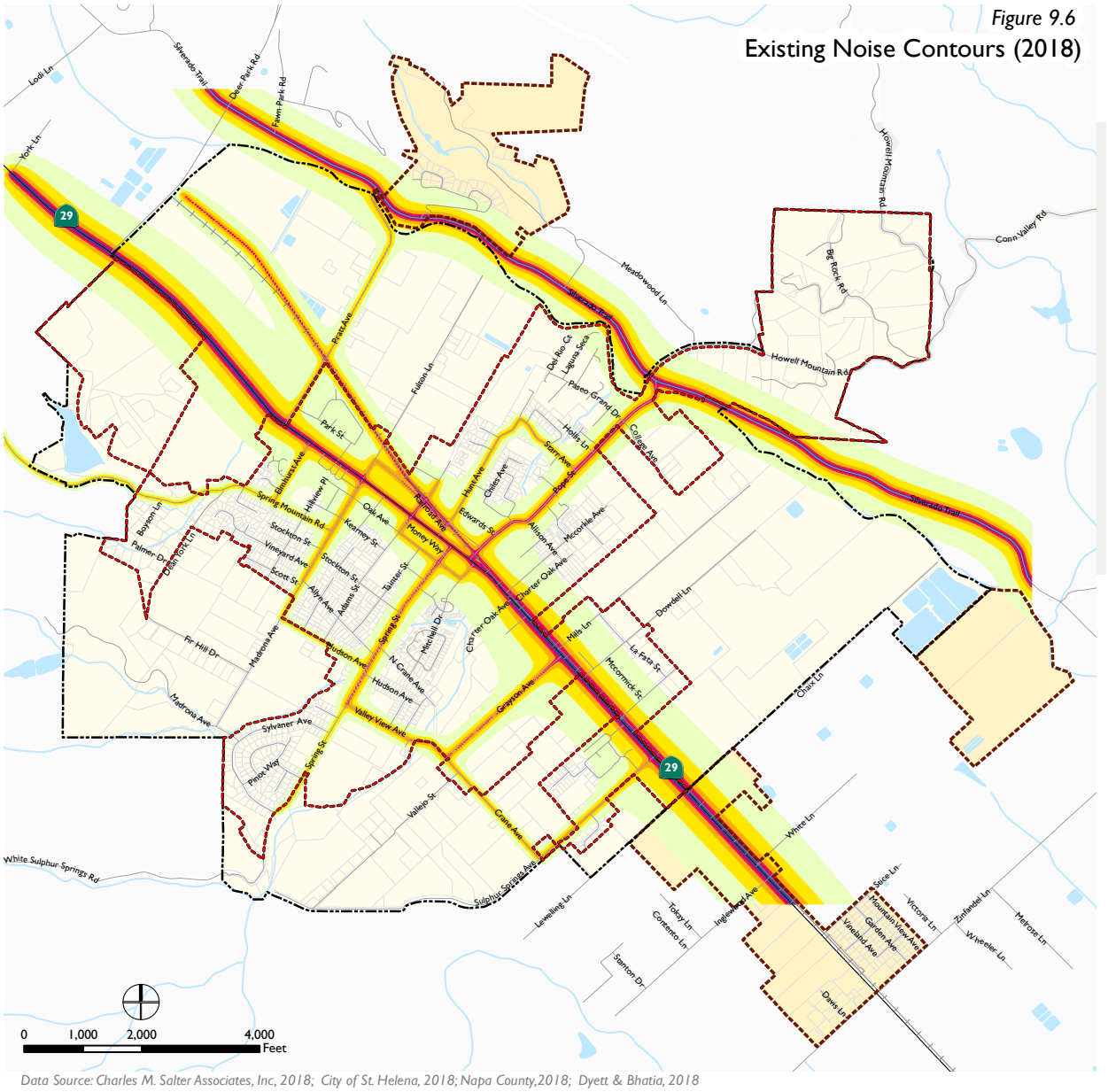
important to maintaining the public health and a quality living sound environment expected by the community.

Vehicular traffic on Highway 29 and collector streets is the primary source of noise in the community. Other non-stationary sources which are intermittent and generally inconsequential to the noise environment include flyover commercial aircraft at high altitudes, and small general aviation and helicopter flyovers. The Wine Train travels to St. Helena each day and emits a loud horn at crossings, along with the low frequency rumble of the diesel engines. Typical stationary noise sources in St. Helena include agricultural and industrial activities. Agricultural activities result in noise from wind machines, tractors, and sulphur blowers which are employed in the spring in the early hours of the morning. The St. Helena Fire Department has sirens at two locations which sound on average two to three times per day, with approximately half of them occurring during nighttime hours. Noise contours as of 2018 are seen in Figure 9.6.

Noise concerns in St. Helena are principally linked to land use compatibility. Concerns relate to adverse noise effects from new commercial development on surrounding noise-sensitive uses such as residences and schools, and also to adverse noise effects from agricultural activities within the city limit. Right-to-farm provisions necessitate accommodating agricultural uses while also seeking to minimize conflicts. To address these concerns and to promote a compatible noise environment throughout the city, Table 9.4 establishes limits on intrusive noise and regulates the amount of noise a specific sound source can emit relative to the typically low residential background sound levels. This standard is specific to residential areas within St. Helena. Additionally, by generally promoting good neighbor practices and facilitating open communication between agricultural, commercial, and residential uses the City can help to foster a healthy noise environment. Noise contours projected for 2040 as a result of the General Plan are shown in Figure 9.7.

Figure 9.6

Existing Noise Contours (2018)



Data Source: Charles M. Salter Associates, Inc, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

TABLE 9.4: Standard and Adjustments for Determining Noise Impact of Intrusive Noise for Residential Receptors

STANDARD

The LAeq of an intrusive noise shall not exceed the following values:

- 7 am – 7 pm (daytime) 45 dBA
- 7 pm – 10 pm (evening) 40 dBA
- 10 pm – 7 am (nighttime) 35 dBA

Or shall not exceed LA90 + 5 dBA whichever is greater. The background sound level LA90 must be measured for a minimum of 10 minutes in the absence of the intrusive noise at the appropriate time of noise impact.

The maximum noise level LAmax of any intrusive noise shall not exceed the LAeq limits by more than 10 dBA.

The limits for intrusive noise are to be corrected as indicated below.

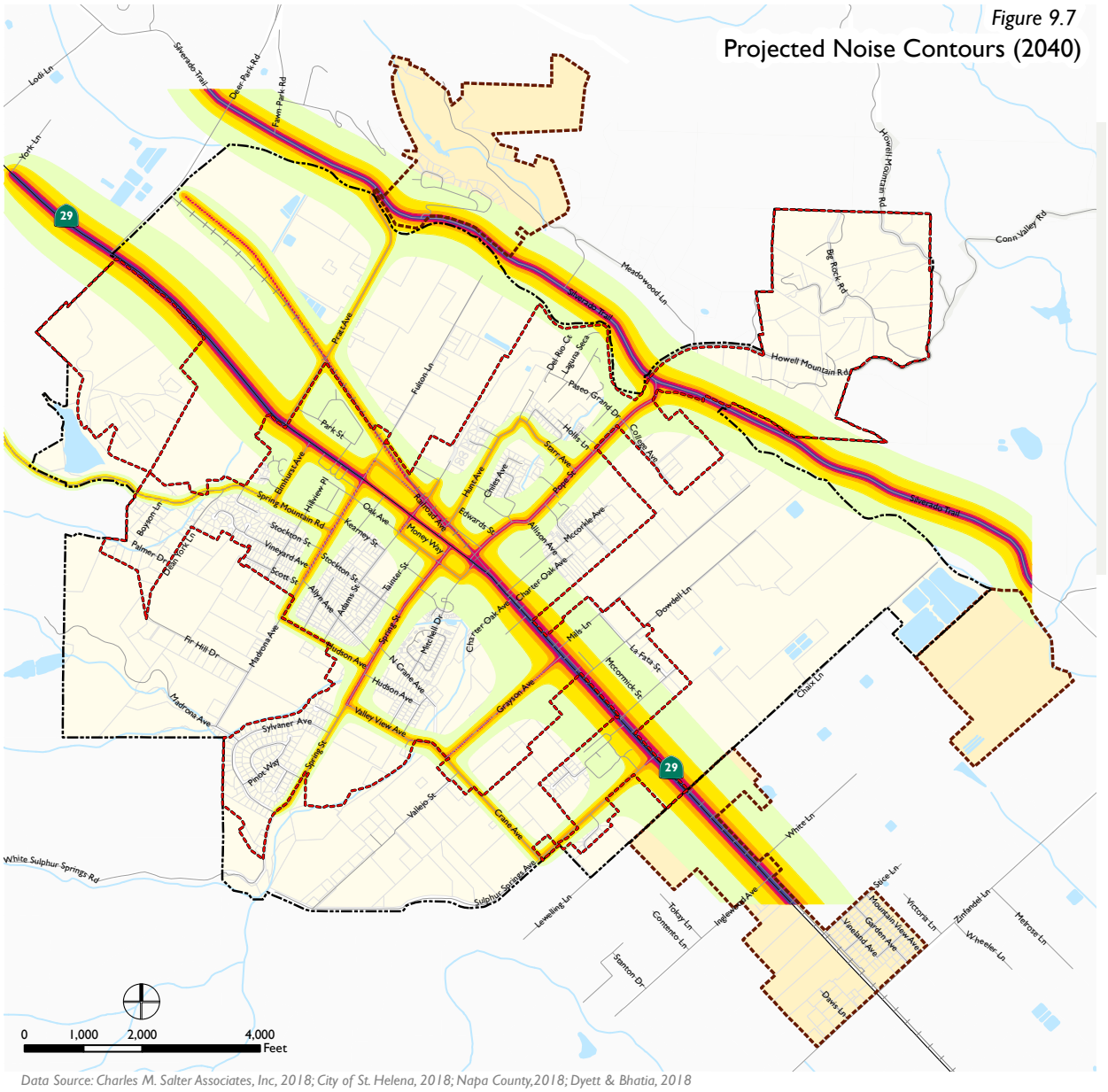
These noise limits apply to the nearest residential property line or at the nearest affected location on the receiver's property.

CORRECTIONS FOR INTRUSIVE NOISE		
Type of Correction	Circumstances of Correction	Correction[a]
Seasonal	Summer or year round operation	0 dBA
	December through March only	+ 5 dBA
Tone or Impulse	No tonal or impulse character	0 dBA
Characteristics	Tonal character[b] present in noise	- 5 dBA
	Impulsive[c], repetitious or modulating[d] signal	- 5 dBA[e]

Notes:
a Correction to be applied to the Standard's limits for intrusive noise.
b Tonality exists when the 1/3 octave noise level of the tone is 5 dB greater than the average level of the two adjacent 1/3 octave frequency bands.
c Transient sound having a peak level of short duration typically less than 100 msec.
d Either in amplitude, frequency or duration including compressor "hammering" noise.
e In addition to correction for tonality.

Figure 9.7

Projected Noise Contours (2040)



Data Source: Charles M. Salter Associates, Inc, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

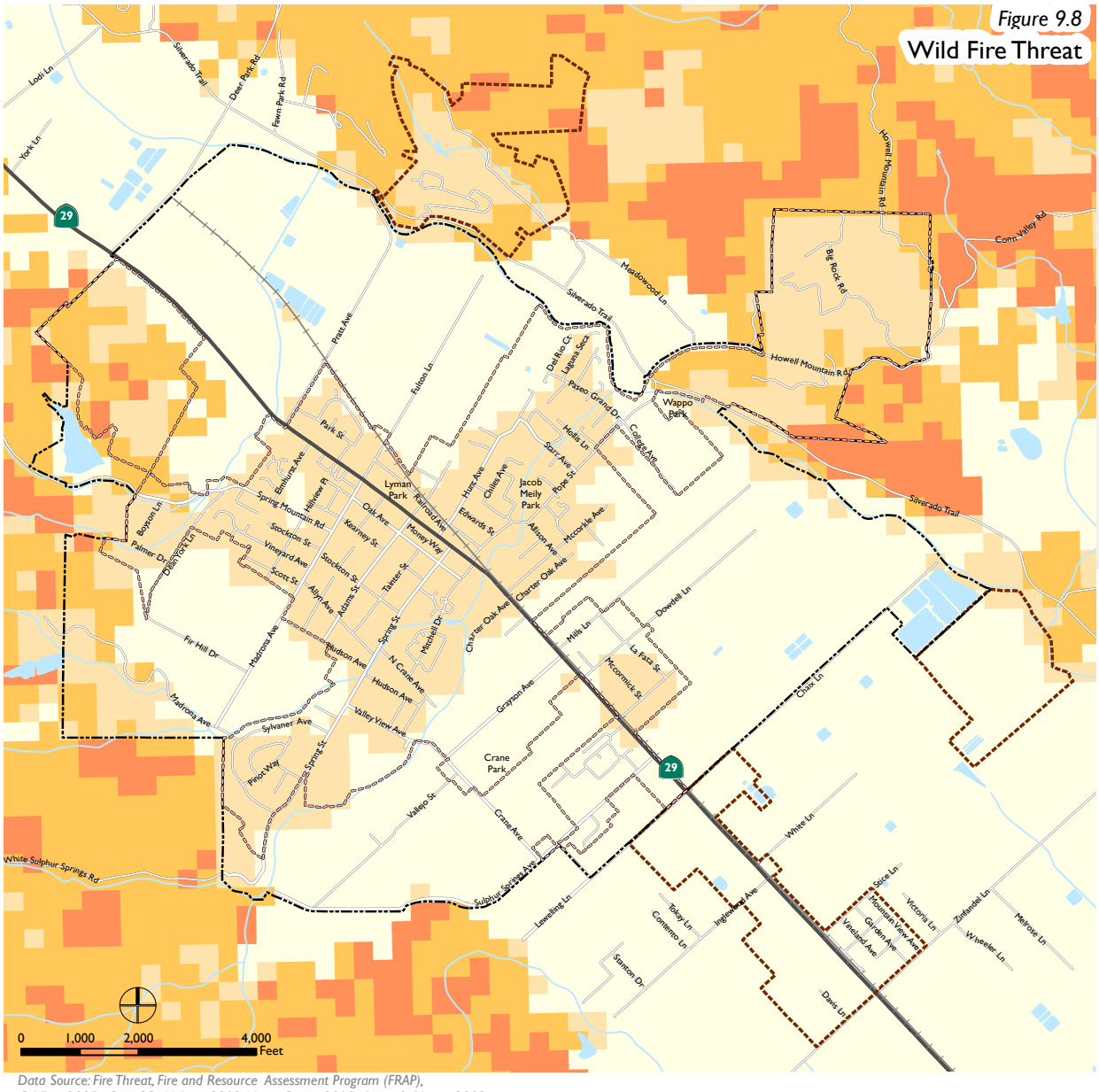
St. Helena's fire and police departments respond to structural fires, wildfires and other disasters.

FIRE

Key human-caused public health and safety hazards affecting St. Helena include structural fires, wildfires, and other disasters that require advanced planning. Overall, in the urbanized portion of St. Helena within the city limit, the risk of wildfire is moderate to low; however, areas of the city in the hilly terrain along the western perimeter of the city and east of the Napa River are classified as having high or very high fire threat by the California Department of Forestry and Fire Protection (CAL FIRE) *(see Figure 9.8)*.

Figure 9.8

Wild Fire Threat



Data Source: Fire Threat, Fire and Resource Assessment Program (FRAP), Cal Fire, 2005; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Fire Threat Level (Cal Fire)
- Extreme Threat
- Very High Threat
- High Threat
- Moderate Threat
- Little or No Threat

- Urban Limit Line
- Study Areas
- City of St. Helena

Fires occurring in the heavily-wooded hillside areas can be difficult for firefighters to address due to traffic congestion on City streets, particularly when emergency vehicles must travel on or across State Route 29. Furthermore, traffic congestion can pose important challenges to St. Helena's collaboration with neighboring municipalities and agencies seeking to establish and implement regionally coordinated disaster planning for police, fire, and emergency medical services. The City can work with local, regional, and state agencies to address key traffic-related concerns on State Route 29 and County roads to ensure that adequate levels of fire protection are maintained, particularly on hillsides and in fire-prone areas, and to support regional collaboration for disaster preparedness. This ability to coordinate fire response is especially critical in the current drought conditions facing the region and the State.

9.3 Key Findings

There are several challenges and opportunities facing St. Helena related to public health, safety, and noise. The following key findings are based upon comprehensive existing conditions analysis and community input.

Flooding

- Flooding in Napa County generally occurs within the low-lying Napa Valley floor. Between 1961 and 1997, flooding resulted in approximately $540 million in property damages. St. Helena experienced major flood events in 1986, 1995, and 2005 that caused an estimated combined total of $95.6 million in damages in the city. Most flooding occurred in the vicinity of Vineyard Valley from Fulton Lane to Pope Street.
- The flood history of York Creek suggests that the creek bed is not of adequate size to convey larger storm events. During the 2005 New Year's Eve storm event, flooding from York Creek significantly impacted residential and industrial properties. The Beringer water treatment plant flooded and ponds overflowed into the creek. In addition, the creek flooded vineyards on both sides of its corridor, downstream of State Route 29 to the Napa River.
- Until 2002, an aggregate mining operation, now discontinued, removed approximately 40,000 to 50,000 cubic yards of material from Sulphur Creek annually. Further study is needed to determine how aggregate buildup at Sulphur Creek may affect flooding issues in the area.
- Completed in June 2011, the City of St. Helena Comprehensive Flood Control and Environmental Restoration Project provides a minimum 100-year level of flood protection within the project and surrounding area of St. Helena. Design of the project was done on the basis of a Napa River Flood Model Study from Zinfandel Lane to Lodi Lane completed jointly by the City of St. Helena and the Napa County Flood Control and Water Conservation District with Measure A funding. The individual elements of the project include floodplain terracing, shoreline restoration, a new levee, floodwall and bank stabilization, and storm-water management features including a detention basin and pumping facility. The project protects hundreds of homes and is projected to save millions of dollars in flood insurance claims.

CONCEPTS, TRENDS AND IDEAS

Hazard Mitigation Planning

FEMA oversees hazard mitigation plans.

Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as "sustained action taken to reduce or eliminate long-term risk to people and their property from hazards." The goal of hazard mitigation is to ensure long-term resilience against natural and human-caused hazards.

Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction and repeated damage.

As a condition for receiving certain types of non-emergency disaster assistance, State, Tribal, and local governments are required to develop a hazard mitigation plan. Napa County, in cooperation with the cities of St. Helena, Napa, American Canyon, Yountville, and special districts, prepared a Local Hazard Mitigation Plan (LHMP) in 2007. The Napa County LHMP sets forth goals, mitigation strategies and mitigation action items for flooding, earthquakes, wildland fire interfaces and terrorism and technological hazards. Working together, local communities and jurisdictions in Napa County can reduce the long-term risks associated with natural and human-caused hazards. The Public Health, Safety and Noise Element is St. Helena's primary policy tool for ensuring local action and St. Helena's involvement in implementing regional hazard mitigation strategies.

- Portions of St. Helena's residential, commercial and winery industrial areas are located within or near the 100-year floodplain. Requiring infrastructure and drainage plans to minimize risk in these areas, in compliance with State and federal requirements, at a minimum, can promote the safety of residents and businesses. Moreover, restricting new development within the FEMA-designated floodplain and prohibiting development in the floodway can minimize additional flood hazards and the need for further mitigation measures.

Between 1961 and 1997, flooding resulted in approximately $540 million in property damages.

Seismic and Geologic Activity

- St. Helena is located in a seismically-active region, with seismic activity primarily related to movements in the San Andreas Fault Zone (SAFZ). Although there are a number of active faults in the region, there are no known active faults in St. Helena.
- Local earthquake hazard mapping suggests that a magnitude 7.9 or greater earthquake on the San Andreas Fault, or a 6.5 magnitude event on the West Napa Fault, could result in strong shaking in the city. As a result, St. Helena's susceptibility to liquefaction ranges from low in the upland areas west of downtown, to very high along the Napa River. United States Geological Survey (USGS) maps indicate that slope stability and landslide issues exist in St. Helena's upland areas, and a major earthquake event could result in significant debris flow. As noted previously, the recent August 2014 earthquake had a magnitude of 6.0, which resulted in no measurable soil liquefaction within the City of St. Helena.
- By limiting the type and scale of new development in hillside areas, or areas subject to liquefaction, the City can limit the potential for property damage and loss of life as a result of major seismic activity. In addition, complying with the Universal Building Code (UBC) and adopting other standards for building safety along with emergency response disaster planning will help minimize the impacts of seismic and geologic disasters.

Air Pollution and Hazardous Materials

- The greatest source of greenhouse gas emissions in the City of St. Helena is the Transportation sector, which comprises 59 percent of total emissions according to a 2018 inventory compiled for the General Plan update. The transportation sector is also the largest generator of air pollution emissions

Restricting new development within the floodplain and prohibiting development in the floodway can minimize additional flood hazards and the need for further mitigation measures.

in the County, with mobile sources – automobiles and trucks – providing the greatest level of emissions. A 2007 Bay Area Air Quality Management District (BAAQMD) GHG inventory indicated that approximately 56 percent of GHG emissions in Napa County resulted from mobile source emissions. Mobile emissions are a significant source of other pollutants, as well, including carbon monoxide and particulate matter.

- The development of a Climate Change Element for the St. Helena General Plan is an important step forward in contributing to the effort to improve regional and local air quality. Napa County's Communitywide Climate Action Plan and the Climate Change Element provide a strategic policy framework to reduce greenhouse gas emissions and reduce air pollution derived from its multiple sources.
- CalEnviroScreen have shown that people living in agricultural areas of California have higher amounts of pesticides in their bodies than other people, which can result in adverse health outcomes. Based on data compiled by the Office of Environmental Health Hazard Assessment (OEHHA), census tracts in St. Helena are in the top quartile in terms of pounds of pesticide per square mile in the state for the years 2012-2014. The Napa County Agricultural Commissioner is responsible for ensuring the safe use of pesticides in all settings in the county. The County runs a Pesticide Use Enforcement program to educate pesticide users of their legal responsibilities and conduct inspections and investigations to ensure the safety of workers, the public, and the environment. Compliance and enforcement activities are complemented with extensive training and outreach to help growers and employees ensure safe handling and use of pesticides.

Noise

- The primary source of noise in the community stems from motor vehicle traffic and commercial activity, particularly in areas near major roads, such as State Route 29. Mitigating traffic noise can be difficult, particularly the noise generated along State Route 29 throughout the day and night. However, the City can adopt noise standards to address more infrequent noise sources, such as those related to off-hours delivery, and commercial loading and unloading.
- While there are few industrial noise sources in St. Helena, passing trains and aircraft generate intrusive noise periodically in the community.
- Agricultural operations generate noise on a seasonal basis; however, local right-to-farm policies limit the City's power to regulate noise impacts. Encouraging the regular communication of planned agricultural activities to surrounding residents can help address potential conflicts relating to noise compatibility. In addition, adopting noise compatibility standards for sensitive land uses can help to minimize the impacts of intrusive noise sources.

Fire and Emergency Response

- St. Helena's paid per call fire department, supported by two permanent staff members (hired in Summer 2018), provides fire protection services for wildland and structural fires within the city limits and in unincorporated areas of Napa County. Although service levels within the city are generally adequate, the heavily-wooded and frequently dry hillside areas could create significant challenges for firefighters.
- By limiting the type and scale of new development in hillside areas, and requiring sufficient road widths and turning radii to accommodate emergency response vehicles, the City can limit the potential for property damage and loss of life due to fires.
- Traffic congestion can adversely impact emergency response time in St. Helena, particularly when emergency vehicles must cross State Route 29. The City can work with emergency response providers to create solutions that address traffic-related emergency response challenges.

Emergency response is an important part of protecting residents and businesses.

9.4 Goals

The goals of the Public Health, Safety and Noise Element are:

Maintain High Levels of Public Health and Safety.
St. Helena is committed to maintaining high standards of public health and safety through anticipation of and preparation for potential natural and human-caused hazards.

Effectively Coordinate Responses to Emergencies and Natural Disasters.
St. Helena is dedicated to protecting residents, businesses, and the environment through efficient local emergency response efforts, public education, and effective coordination with regional, State, and federal agencies.

Policies and actions are set to protect the community against flood hazards.

9.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Air Quality;
2. Noise;
3. Seismic and Geologic Hazards;
4. Fire and Hazardous Materials;
5. Flood Hazards; and
6. Disaster Planning.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

topic area
1 AIR QUALITY

Policies

PS1.1 Achieve and maintain clean, healthy air for the residents of St. Helena to preserve environmental quality and community health.

PS1.2 Support regional efforts to achieve and maintain state ambient concentration standards to protect public health, reduce adverse industrial plant effects, and enhance the visual environment. In particular, provide local support for implementation of policies and measures set forth in the Napa County Congestion Management Program.

PS1.3 Encourage effective regulation of those sources of air pollution, both inside and outside of St. Helena, which affect air quality, by implementing as many of the recommendations of the Napa County Congestion Management Plan as is feasible.

PS1.4 Promote an optimized land use development pattern that minimizes cumulative air quality impacts from proposed developments.

topic area
1 AIR QUALITY

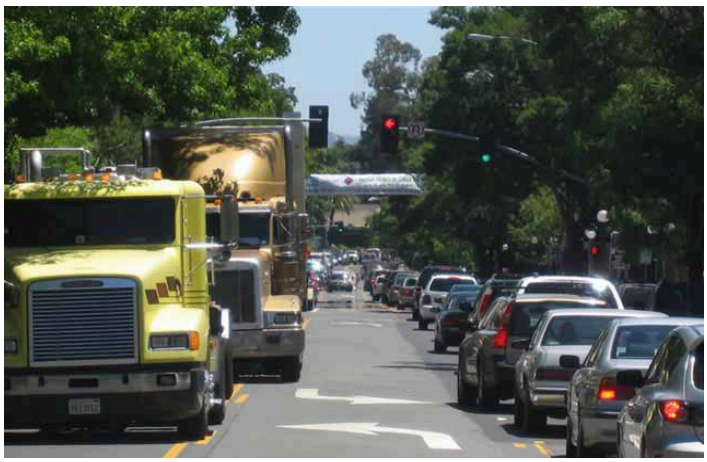
Implementing Actions

PS1.A Minimize local adverse air quality impacts related to construction by requiring dust abatement procedures for local projects.

PS1.B Mandate the use of EPA-approved wood stoves or fireplace inserts, rather than fireplaces, as a means of reducing emissions into the air.

PS1.C Review project proposals for their potential to generate hazardous air pollutants.

PS1.D Develop guidelines for locating new sensitive uses, including residences, schools, and childcare facilities, away from air pollutant sources. The guidelines can include measures to mitigate air emissions from existing sources, as well as to design buildings to prevent exposure.



Air quality can be improved by implementing the Napa County Congestion Management Plan.

PS1.E Encourage and support regional efforts to use alternative modes of transportation.

PS1.F Consider a citywide network to help commuters arrange carpools, including online coordination capabilities and designated areas for parking and pick-up.

PS1.G Adopt the thresholds of significance contained in the Bay Area Air Quality Management District's (BAAQMD) Guidelines for Assessing the Impacts of Projects and Plans for determining the significance of project impacts under the California Environmental Quality Act.

topic area
1 AIR QUALITY

PS1.H Continue to implement an ordinance to restrict exposure to environmental tobacco smoke in new and existing multi-unit dwellings, public events, and outdoor areas, such as parks and playgrounds.

PS1.I Adopt a voluntary, employer-based transportation demand management (TDM) program for St. Helena businesses in compliance with the BAAQMD's 2017 Clean Air Plan (CAP). Components of a TDM program should include measures to reduce the use of single-occupancy vehicles for work-related commuting, such as carpool/vanpool matching services and employer-sponsored transit passes.

PS1.J The potential for sources of odors that includes restaurants, auto body shops, or waste treatment facilities shall be considered when evaluating proposed residential projects and projects with sensitive recipients.

topic area
2 NOISE

Policies

PS2.1 Preserve the current low levels of noise in St. Helena to maintain the City's rural atmosphere.

PS2.2 Maintain a citywide environment that balances various City objectives while minimizing the impact of highway, railroad, and industrial noise. The City should manage both indoor and outdoor noise levels to protect health and safety. A combination of noise standards and existing noise levels should be used to determine impacts and mitigation measures.

PS2.3 Minimize potential noise impact conflicts between land uses by regulating incompatible land uses. Encourage noise-generating uses to reduce their impacts while promoting land use patterns that avoid conflicts. Employ compatibility guidelines, interior noise level criteria, the City's noise standards, and noise contour maps to determine the compatibility of land uses.

PS2.4 Require a reduction and/or control of the use of machinery, mechanical systems and other noise-making equipment and sources in and near residential areas where the noise impacts would be considered intrusive to adjacent residential property, unless consistent with the right-to-farm.

Implementing Actions

PS2.A Consider the environmental impact of transportation-related noise and other noise sources in the review of any new projects and approval of subdivision plans and requests for changes in the zoning ordinance.

PS2.B Enforce the Land Use Compatibility Standards presented in the State of California's General Plan guidelines when siting new uses. These standards identify the acceptability of a project based on levels of noise exposure.

PS2.C Adopt and enforce Title 24 Standards for all types of new residential construction, including single family dwellings, duplexes, apartments, and dormitories.

- An interior maximum noise level of LAdn-45 dBA in all habitable rooms for all dwelling units;
- A maximum allowable interior noise level for bedrooms of an hourly LAeq-35 dBA;
- A maximum noise level of LAdn-60 dBA for residential exterior activity areas;
- If interior noise standards are met by requiring windows to be closed, cooling and outside air exchange must also be provided in the building's design.

PS2.D Require an acoustical study, prepared by a qualified acoustical consultant for:

- All proposed projects that are likely to be exposed to noise levels greater than the standards;
- All proposed projects that would generate noise where impacts on other uses would be greater than the standards;
- Any project exposed to outdoor noise at or above a day-night average sound level (Ldn) of 60 or for any noise source that could create such outdoor noise levels for adjacent uses; and
- Any project exposed to or that creates noise which may exceed the adopted City standards.

Noise can be mitigated by minimizing conflicts between land uses by regulating incompatible land uses.

topic area
2 NOISE

PS2.E Require new developments to implement noise mitigation measures when built in close proximity to noise sources, such as State Route 29 and the railroad tracks. These developments should consider the exterior and interior noise environment.

PS2.F Require construction operations to use noise suppression devices and techniques and limit noisy construction activities that can be heard at the property line to the least noise-sensitive times, as per the City's noise ordinance.

PS2.G Include appropriate noise attenuation techniques in the design of all new arterial streets. Such techniques could include the use of site planning, building orientation, buffer distances, quiet pavement surfaces, and the use of correctly-engineered acoustical barriers and berms where necessary. Adopt the noise standard for intrusive noise at residences given in Table 9.4.

PS2.H Amend the City's noise ordinance to regulate intrusive noise sources, such as the use of machinery and equipment, landscaping and property maintenance devices, animals, and idling buses or trucks in or near uses sensitive to noise.

PS2.I Incorporate right-to-farm legal provisions relative to noise in all newly-created deeds where agricultural activities may pose noise impacts in the future. Require similar language in deeds for properties similarly impacted by the Harold Smith & Son gravel plant operations.

topic area
3 SEISMIC AND GEOLOGIC HAZARDS

Policies

PS3.1 Minimize risk of injury, loss of life and property damage from seismically-induced and other known geologic hazards.

PS3.2 Restrict the intensity of development and the level of landform alteration in the hillside areas in order to minimize the potential for slope failure.

PS3.3 The required soils and geologic reports for new development shall include geotechnical analysis for construction in areas with potential geological hazards and/or for purposes of environmental analysis. The analysis shall investigate all potential geo-hazard issues for the site where there is substantial evidence of a potential risk.

PS3.4 Geologic reports for new development shall describe hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, an engineer's or geologist's certification shall be required stating that risks have been mitigated to an acceptable level.

topic area
3 SEISMIC AND GEOLOGIC HAZARDS

Implementing Actions

PS3.A Require a soils and geologic report to be submitted for new construction prior to the issuance of grading and building permits and the submission of final maps.

PS3.B Prohibit any development—including any land alteration, grading for roads, and structural development—in areas of slope instability or other geologic concerns until mitigating measures are taken to limit potential damage to levels of acceptable risk.

PS3.C Require prompt re-vegetation of development areas on slopes prone to instability. Use native and drought-tolerant plant species for landscaping on slopes where excess watering might induce landslides and/or erosion.

PS3.D The City shall rely upon the most current and comprehensive geological hazard mapping available in the evaluation of potential seismic hazards associated with proposed new development.

PS3.E All development and construction proposals shall be reviewed by the City to ensure conformance to applicable building standards. Recommendations of the geotechnical analysis shall be implemented.

Earthquakes can cause damage to property and cause loss of life and injury.

topic area
4 FIRE AND HAZARDOUS MATERIALS

Policies

PS4.1 Use the Zoning Code to define a transitional zone around industrial areas to protect the health and safety of residential neighborhoods.

PS4.2 Limit development in areas of High and Very High wildfire hazard as defined and mapped by the California Department of Forestry and Fire Prevention (CalFire) in order to prevent the loss of lives, injuries, and property damage due to wildfires.

PS4.3 Protect St. Helena residents from health and safety impacts related to the use, storage, manufacture, and transport of hazardous materials.

PS4.4 Discourage new uses that rely extensively on the use of hazardous materials.

PS4.5 Facilitate communication and education about fire safety, non-point source pollution, household hazardous waste disposal, and recycling opportunities.

PS4.6 Ensure that all streets and roads are adequate in terms of width, turning radius, and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress.

The transitional zone around industrial areas protects the health and safety of residential neighborhoods.

topic area
4 FIRE AND HAZARDOUS MATERIALS

Implementing Actions

PS4.A Designate areas in St. Helena that are prone to fire hazards and make this information available to the community.

PS4.B Continue to require implementation of best practices in fire resistance for all new and remodeled structures in fire-prone areas, including fire fuel removal, creation of defensible space for firefighters, construction with fire-resistant building materials, and installation of automatic sprinkler systems. Study the need to designate a Wildland-Urban Interface Fire Area within St. Helena to provide protection in additional areas.

PS4.C Require all structures in high wildfire hazard areas to maintain a clearance of flammable vegetation away from structures and to use fire-resistant ground covers. The minimum clearance distance should be 30 feet.

PS4.D Require all new development to meet the minimum fire flow rates specified by the City's Fire Code.

PS4.E Require all new development plans to be approved by the Fire Department prior to the issuance of building permits, grading permits, or final map approval.

PS4.F Develop a program to inform and educate the community about potential risks, resources, and roles and responsibilities for addressing fire safety in St. Helena. Inform residents of homes adjacent to public lands of their responsibility to provide fire breaks adjacent to their homes.

PS4.G Review all new development proposals for their potential to introduce the production, use, storage, and/or transport of hazardous materials, and require reasonable controls on such materials.

PS4.H Develop a Hazardous Materials Response Plan that includes guidelines, protocols, and strategies to respond to a local hazardous materials spill.

topic area

4 FIRE AND HAZARDOUS MATERIALS

PS4.I Continue to require compliance with federal, State, and local regulations for the safe production, transport, handling, use, and disposal of hazardous materials that may cause air, water, or soil contamination. Require buffers for operations which handle substantial amounts of hazardous materials. When siting new facilities or expanding existing facilities, require buffer zones between hazardous materials facilities and residential uses, parkland, trails, and open space facilities.

PS4.J Develop and launch a citywide education campaign to encourage the use of green products in order to reduce non-point source pollution. Target efforts towards the reduction of household chemical use and hazardous waste disposal.

PS4.K Require environmental assessments during the planning for development in areas previously used for agricultural, commercial, or industrial uses. Remediation of identified contamination that may result in health risks to construction workers and future owners and users shall be required prior to approval of construction, demolition, and grading permits for development.

PS4.L Work with the Napa County Agricultural Commissioner and other responsible agencies to identify and enforce mechanisms to control residual pesticides and pesticide runoff to prevent significant risk to water quality, vegetation, wildlife, and humans.

PS4.F Develop a program to inform and educate the community about potential risks, resources, and roles and responsibilities for addressing fire safety in St. Helena. Inform residents of homes adjacent to public lands of their responsibility to provide fire breaks adjacent to their homes.

PS4.G Review all new development proposals for their potential to introduce the production, use, storage and/or transport of hazardous materials, and require reasonable controls on such materials.

topic area
4 FIRE AND HAZARDOUS MATERIALS

PS4.H Develop a Hazardous Materials Response Plan that includes guidelines, protocols, and strategies to respond to a local hazardous materials spill.

PS4.I Strengthen regulations for the safe production, transport, handling, use and disposal of hazardous materials that may cause air, water, or soil contamination. Require buffers for operations which handle substantial amounts of hazardous materials. When siting new facilities or expanding existing facilities, require buffer zones between hazardous materials facilities and residential uses, parkland, trails, and open space facilities.

PS4.J Develop and launch a citywide education campaign to encourage the use of green products in order to reduce non-point source pollution. Target efforts towards the reduction of household chemical use and hazardous waste disposal.

topic area
5 FLOOD HAZARDS

Policies

PS5.1 Minimize the risk to people, property and the environment caused by flooding hazards. Site new development to minimize potential damage from a 100-year flood. Continue to require that any new development is constructed FEMA standards. Prohibit the siting of uses within Flood Hazard Areas inconsistent with FEMA standards that could result in health and safety hazards, including those due to the release of chemicals or other substances as a result of inundation or erosion. Ensure that any new flood protection projects comply with federal and State standards.

PS5.2 Ensure that new development or existing lots of record within the 100-year floodplain are properly graded, sited, and constructed to mitigate flood effects and do not cause increases or expansion of the flood area that increase flood risk.

PS5.3 Within the 100-year floodplain, encourage open space uses, such as parks or natural areas.

PS5.4 Ensure that construction of flood barriers does not adversely affect natural floodplains, stream channels and natural barriers that help accommodate or channel flood waters.

PS5.5 Prohibit new development within areas designated as Floodway in the current FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM). (*Also see the Public Facilities and Services Element, Topic Area 3*)

PS5.6 Coordinate with the Napa County Flood Control and Water Conservation District and other responsible agencies to maintain protocols and funding for the regular inspection and maintenance of flood control facilities in the city, including levees, floodwalls, floodplain terracing, stormwater detention ponds, and pumping facilities.

topic area
5 FLOOD HAZARDS

PS5.7 Require that development within Special Flood Hazard Areas prepare and implement infrastructure and drainage plans compliant with State and federal requirements in order to minimize risk in these areas.

PS5.8 Locate new essential public facilities outside of Special Flood Hazard Areas, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities. *(Also see the Public Facilities and Services Element, Topic Area 3)*

Implementing Actions

PS5.A Coordinate with the Napa County Flood Control District to ensure that stream channels are routinely cleared of vegetation and debris which could impede stormwater flows, while protecting riparian habitat.

Coordination with the County Flood Control District will ensure that stream channels are routinely cleared of vegetation and debris.

PS5.B Require developers with land adjacent to the Napa River to construct or contribute a fair share toward the construction of necessary flood control improvements.

PS5.C Strengthen and enforce regulations that prohibit the dumping of litter, fill, and waste materials into creeks and waterways. Educate the public about flooding and health hazards associated with these activities.

PS5.D Require that sewer and water lines in areas subject to flooding are sited to avoid contamination and flooding when pipelines break.

topic area
5 FLOOD HAZARDS

PS5.E Prohibit the introduction of urban development in FEMA-designated Floodway zones.

PS5.F Review Municipal Code Chapter 15.52, Flood Damage Prevention, to ensure that regulations reflect best practices. Periodically update the City's flood hazard regulations in accordance with FEMA/NFIP regulations.

PS5.G Implement the requirements of FEMA relating to construction in Special Flood Hazards Areas as illustrated on Flood Insurance Rate Maps.

PS5.H Implement low impact development practices for new development and redevelopment projects to reduce stormwater peak flow rates and volumes from smaller, more frequently occurring storm events.

topic area
6 DISASTER PLANNING

Policies

PS6.1 Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters and that applicable operations and maintenance manuals are followed.

Implementing Actions

PS6.A Maintain and periodically update the City's Emergency Response Plan.

PS6.B Conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures.

PS6.C Continue to collaborate with regional agencies and neighboring jurisdictions to develop and implement a regional emergency coordination plan and agreement for police, fire, and emergency medical services.

chapter ten

climate change

10 climate change

Community farmers markets provide opportunities to purchase locally-grown foods close to home, reducing the miles food travels to the table.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety, and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture, and entertainment

10.1 Purpose of the Element

The Climate Change Element presents a framework to help the City respond to and plan for climate change. It aims to effectively address energy and water conservation, renewable energy production, transportation, sustainable business development, and the responsible evolution of the City to reduce climate change impacts in St. Helena. The policies and actions included in this element seek to chart a course that meets St. Helena's specific needs, aligning with the Napa Countywide Community Climate Action Plan Framework, which St. Helena participated in developing. The Climate Change Element includes the following sections:

The Climate Change Element:

- **10.2 Combating Climate Change in St. Helena.** Describes key climate change issues in St. Helena (p. 10-3).
- **10.3 Key Findings.** Identifies key findings based on an existing conditions analysis and extensive community outreach (p. 10-8).
- **10.4 Goals.** Defines overarching goals to guide policies and implementing actions (p. 10-11).

- **10.5 Policies and Implementing Actions.** Identifies policies and implementing actions to accomplish St. Helena's climate change objectives (p. 10-13).

10.2 Combating Climate Change in St. Helena

Climate change refers to a change in the average global climate that may be measured by wind patterns, storms, precipitation, and temperature. The term climate change is often used interchangeably with the term global warming. Global warming refers to an average increase in the temperature of the atmosphere near the Earth's surface, which can contribute to changes in global climate patterns. However, rising temperatures are just one aspect of climate change.

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and regulate the earth's temperature. This effect, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. GHGs are released into the earth's atmosphere through a variety of natural processes and human activities. The current period of global warming is widely attributed to a buildup of GHG emissions from human-made sources that have proliferated and accelerated since the age of industrialization. Many scientists project that global temperatures will likely continue to increase in the future, raising broad concern about the effects of temperature change on the Earth's climate. Potential risks include rising sea levels, changing precipitation patterns, expanding desertification, and increasing GHG emissions.

Although debate continues about how the United States should engage in the global climate change discussion, many state and local governments have adopted policies to address climate change concerns. By adopting this Climate Change Element, St. Helena can take steps to forward the global climate change agenda at the local level. Moreover, as climactic conditions shift in the coming decades – potentially requiring policy responses unknown today – St. Helena will be in a position to adapt to and accommodate new federal, State, and regional planning requirements as they arise.

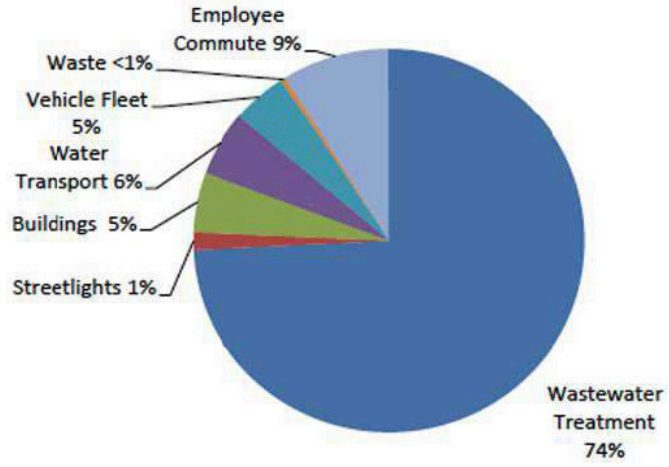
Canopies of urban street trees create shade and help enhance quality of life while mitigating the impact of the built environment on natural systems.

10 climate change

Innovative systems can capture and reuse rainwater and make use of rooftop spaces for agriculture or plantings.

St. Helena joined the International Council for Local Environmental Initiatives (ICLEI) in 2008. In coordination with ICLEI and the Climate Protection Campaign, the City developed the 2009 City of St. Helena Greenhouse Gas Emissions Reduction Action Plan Analysis Final Report. In 2012, the City completed a GHG emissions inventory of City-controlled operations and activities. Available data indicate that in 2010, the City of St. Helena municipal operations emitted 3,506 metric tons of equivalent carbon dioxide (CO2e). Municipal GHG emissions varied by end-use sector, with water and wastewater operations and employee commutes generating the largest proportions of total emissions. The remainder of the City's GHG emissions included City buildings, vehicle fleet, streetlights, water transport facilities, and government-generated solid waste disposal.

Figure 10.1 Government Operations Emissions by Sector, 2010



In addition to the 2005 and 2010 municipal inventories, ICLEI developed 2005 and 2010 community GHG inventories for the City of St. Helena. A community inventory accounts for emissions from all emissions sources, not just from those sources under direct municipal control. According to ICLEI's modeling, St. Helena produced 43,831 metric tons of CO2e in 2005 and 44,008 metric tons of CO2e in 2010. In 2005, the largest sources of emissions were the

commercial/industrial sector (38 percent), residential (25 percent), and on-road transportation (22 percent). In 2010, commercial/industrial emissions remained the largest contributor of GHGs in St. Helena (35 percent), followed by on-road transportation (29 percent), and residential (25 percent) (ICLEI, 2012). Emissions were reduced in all sectors except the transportation sector, which increased 36 percent.

For the General Plan Update, an updated community GHG emissions inventory was compiled for the City of St. Helena using best available data and modeled for a baseline year of 2018. The inventory found that St. Helena's baseline emissions totaled 76,012 MTCO2e. As shown in Table 10.1: 2018 GHG Emissions Summary by Sector (MTCO2e), the transportation sector was responsible for the largest source of emissions, generating 44,531 MTCO2e (59 percent). Electricity and natural gas use from the commercial/industrial sector was the second largest source of emissions, generating approximately 12,773 MTCO2e (17 percent). Electricity and natural gas consumption within the residential sector was the third largest source of emissions, generating 9,890 MTCO2e (13 percent).

In 2012, the City adopted a GHG reduction target of 20 percent below 2005 levels by the year 2020. This target is consistent with the State's goal to reduce California emissions to 1990 levels by the year 2020. In recent years, the State has also set a reduction goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05) and an interim target of 40 percent below 1990 levels by 2030 (Executive

TABLE 10.1: Greenhouse Gas (GHG) Emissions in St. Helena

Sector	2005 Emissions (MTCO2e)	2010 Emissions (MTCO2e)	Change (MTCO2e)	Percent Change
Commercial/Industrial	16,588	15,444	-1,144	-7%
Transportation	9,520	12,907	3,387	36%
Residential	11,169	10,946	-223	-2%
Off-road Vehicles and Equipment	2,248	2,191	-57	-3%
Agriculture	1,622	1,468	-155	-10%
Waste	2,684	1,053	1,631	-61%
TOTAL	43,831	44,008	177	0.4%

Source: City of St. Helena. DRAFT Napa County Carbon Footprint Results. 2009

CONCEPTS, TRENDS, AND IDEAS

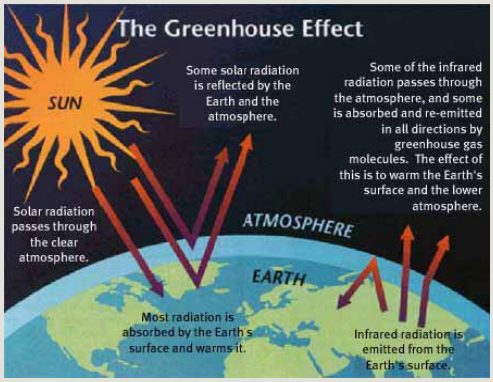
Planning Regionally as a Solution to Climate Change

The single-largest source of greenhouse gases in California is emissions from passenger vehicles. This means that in order to reduce greenhouse gas emissions and reduce our contribution to climate change, California must revisit existing policies and the way communities are designed in order to reduce the number of vehicle miles traveled by the State's residents, therefore reducing vehicle emissions.

In 2006, the Governor signed The Global Warming Solutions Act into law to do just that. Often referred to as Assembly Bill 32 (AB 32), the Global Warming Solutions Act requires the State of California to reduce greenhouse gas emissions (GHG) to 1990 levels no later than 2020. In recent years, the State has also set a reduction goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05) and an interim target of 40 percent below 1990 levels by 2030 (Executive Order B-30-15). Additionally, the California Air Resources Board (CARB) Scoping Plan, adopted in 2017, establishes per capita GHG emissions targets of 4.0 metric tons of CO2e per capita by 2030 and 2.0 metric tons of CO2e per capita by 2050. These per capita targets are consistent with statewide reduction goals.

SB 375 takes AB 32 to the next step by requiring California's regional land use and transportation authorities to work with local agencies to achieve more compact growth patterns, thereby reducing the quantity of greenhouse gases emitted by passenger vehicles.

Although many Californians can picture the long-term dire consequences of climate change, there are also many near-term dangers to the state's wetlands as changing weather patterns affect wildlife habitats and life cycles.



The greenhouse effect has been studied for many years, but California is the first state in the nation to take specific action to combat the effects of greenhouse gas emissions.

SB 375 has five key features:

1. It mandates that regional planning agencies establish regional targets for reducing greenhouse gas emissions tied to land use, and therefore driving patterns.

2. It requires that regional planning agencies create a plan to meet those targets.

3. SB 375 requires that regional transportation funding decisions be consistent with this new plan.

4. It integrates regional transportation planning and housing allocation efforts for the first time.

5. It establishes new California Environmental Quality Act (CEQA) exemptions and streamlining for development projects that conform to the new regional plans.

The Sustainable Communities Strategy

SB 375 requires the California Air Resources Board (CARB) to establish GHG emission reduction targets related to transportation for each Metropolitan Transportation Organization (MTC) region by September 30, 2010. The Metropolitan Transportation Commission (MTC) is the designated MPO for Napa County and the greater Bay Area region.

Under SB 375, each MPO must then add a new element to its long-range Regional Transportation Plan (RTP) called a "Sustainable Communities Strategy," or SCS. The SCS seeks to achieve the targeted reductions in greenhouse gas emissions if there is a feasible way to do so, planning for compact growth and matching transportation improvements.

Order B-30-15). Additionally, the California Air Resources Board (CARB) Scoping Plan, adopted in 2017, establishes per capita GHG emissions targets of 4.0 metric tons of CO2e per capita by 2030 and 2.0 metric tons of CO2e per capita by 2050. These per capita targets are consistent with statewide reduction goals.

Through Assembly Bill 32 and other legislation, the State is implementing measures that will reduce emissions by improving fuel efficiency in vehicles, reducing the carbon intensity of transportation fuels, increasing the use of renewable power, and other actions. However, local action is also needed to complement actions at the State level and ensure St. Helena meets its reduction target.

Targeting climate change policies to reduce vehicle miles traveled on local roads is essential to achieving the City's long-term GHG reduction goals. Moreover, strengthening policies to improve commercial and residential building efficiency, conserve energy, and eliminate organic waste from landfills can reduce community emissions. Within government operations, improving building efficiency, utilizing renewable energy, and replacing vehicles with more fuel-efficient models can significantly reduce GHG emissions.

In 2009, St. Helena joined with other Napa County jurisdictions to prepare the Napa Countywide Community Climate Action Framework. The Framework, adopted by the Napa Valley Transportation Authority (NVTA) in 2010, provides a consensus-based context for further planning efforts by the individual cities and towns. It outlines a suite of actions that, when translated into locally specific programs and projects countywide, will help meet climate protection targets. Many of the implementing actions contained in this Climate Change Element are based on the actions identified in the Framework.

10.3 Key Findings

There are several challenges and opportunities facing St. Helena related to climate change. The following key findings are based upon comprehensive existing conditions analysis and community input.

Green jobs programs can help to build local capacity for solar installations and other energy saving strategies for homeowners.

- St. Helena is currently implementing a program to reduce GHG emissions from City facilities based on findings in the City of St. Helena Greenhouse Gas Emissions Reduction Action Plan Analysis (Final Report April 22, 2009).
- The City of St. Helena municipal operations emitted 3,506 metric tons of CO2e during the year 2010. Water and wastewater operations and employee commutes generated the largest proportions of total emissions 74 percent and 9 percent, respectively). Water transport facilities accounted for 6 percent of emissions, followed by City buildings (5 percent street lights (1 percent) and government-generated waste (less than 1 percent). By implementing measures for future action relating to building and equipment energy efficiency, fuel efficiency, alternative fuel options, and alternative energy generation, the City can make strides to meet its GHG reduction goals and be a model for other businesses and institutions seeking to reduce long-term emissions levels.
- The City participated in the development of the Napa Countywide Community Climate Action Framework, which contains 53 consensus-based actions intended to guide the participating jurisdictions in meeting GHG reduction goals. The collaborative process was managed by the Napa County Transportation and Planning Agency. A 2006 Bay Area Air Quality Management District (BAAQMD) report indicated that approximately 55 percent of GHG emissions in Napa County resulted from mobile source emissions. Effective

10 climate change

Innovative landscaping like rain gardens can beautify impermeable surfaces like parking lots while addresswater runoff concerns.

land use planning that reduces vehicle miles traveled and promotes alternate modes of transportation is essential to mitigating climate change. By focusing on improving bicycle and pedestrian connections across the City and reducing commute and truck trips, St. Helena can address auto-related emissions levels at both the local and regional levels.

- St. Helena's estimated 2018 baseline community-wide GHG emissions totaled 76,012 metric tons CO2e, and emissions were 13.0 MTCO2e per capita for the residential population and 6.7 MTCO2e per service population. Transportation emissions make up a significant portion of St. Helena's emissions (59 percent), with commercial/industrial energy use in second place (17 percent), and residential energy use in third (13 percent). Commercial/industrial and residential emissions have decreased since 2010. Transportation emissions appear to have significantly increased since 2010, however, this is due to a change in the methodology in accounting for VMT within the GHG inventory to be consistent with best practices and protocols.
- Over half of community-wide emissions in St. Helena result from on-road vehicles. Effective land use planning that reduces VMT and promotes alternate modes of transportation is essential to mitigating climate change. By focusing on improving bicycle and pedestrian connections across the city and reducing commute and truck trips, St. Helena can address auto-related emissions levels at both the local and regional levels.
- Like other communities throughout California, St. Helena is vulnerable to water shortages in the event of prolonged period of drought that could be exacerbated by climate change. Fully integrating water resource conservation policies and implementation measures into the City's Climate Change Element is essential to ensuring that St. Helena will have adequate water supplies to meet its future needs.
- A significant portion of St. Helena's economy relies on industry sectors that may be adversely affected by climate change, most importantly agriculture and tourism. By considering the water supply in future climate change scenarios and supporting measures to recycle and reuse water as much as possible in the near future, the City can begin to strengthen the viability of its industries, markets, and employment into the future.

Creating walkable streets and shopping districts can help to reduce dependence on automobiles as residents and visitors walk and bicycle more.

10.4 Goals

The goals of the Climate Change Element are:

Increase Citywide Transportation-Related Energy Efficiency.

The City seeks to reduce demand for fossil fuels by decreasing VMT, improving transit options and the fuel efficiency of vehicles, supporting the use of renewable energy-powered vehicles, and creating a bicycle and pedestrian-friendly environment.

Reduce Energy Demand Through Improved Building and Design.

St. Helena is dedicated to reducing energy demand by promoting development and construction that improve resource conservation and efficiency, and to improving the energy supply by switching from fossil fuels to renewables.

Reduce Consumption and Divert Waste.

The City is committed to achieving waste diversion of 75 percent to 90 percent by year 2020.

Ensure the Sustainable Management of Agriculture, Natural Resources, and Urban Forests.

St. Helena is dedicated to protecting and increasing the amount of vegetation and biomass in local soils, reducing emissions from agricultural sources, encouraging responsible and sustainable agricultural and landscaping practices, and significantly reducing water use to protect local water resources.

Increase Community Engagement and Advocacy.

The City seeks to increase participation in GHG reduction efforts through marketing programs and community outreach. In addition, they are committed to engaging and advocating for collaborative policy and legislative solutions at the local, regional, state, federal, and global levels.

Improve the Efficiency of Local Government Operations.

St. Helena is dedicated to reducing fossil fuel consumption by local government operations, improving the energy efficiency and reduction of carbon emissions of City and County facilities and operations, and reducing solid waste attributable to City and County operations and facilities.

10.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Transportation and Mobility;
2. Buildings and Energy;
3. Consumption and Solid Waste;
4. Agriculture, Natural Resources, and Urban Forests;
5. Community Engagement; and
6. Local Government Operations.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused. They reflect St. Helena's commitment to coordinating its climate change measures with countywide efforts to address climate change.

topic area
1 TRANSPORTATION AND MOBILITY

Policies

CC1.1 Promote a "walkable" and "bikeable" city.

CC1.2 Support transportation planning efforts to optimize fuel efficiency and reduce vehicle miles travelled on local roads.

CC1.3 Seek initiatives that provide efficient modes of transportation for visitors and residents.

TOP *California's rail system provides regional transit connections throughout the state.*

BOTTOM *Innovative solutions for parking lots can create self-sustaining spaces with less impact on the natural environment.*

Implementing Actions

CC1.A Adopt and implement pedestrian and bicycle networks within St. Helena that may connect to a countywide multi-use trail that extends from Calistoga to American Canyon.

CC1.B If feasible maintain and enhance existing express bus, local bus, and para-transit services. Provide shuttle service between the three upvalley towns. Support the establishment of a northbound express bus during peak commute hours. Ensure that these services provide opportunities to connect with existing and proposed countywide service improvements, including the transit center in Downtown Napa.

CC1.C Expand Park and Ride areas and other support facilities to encourage public transportation use and car and van pooling.

CC1.D Evaluate truck and freight rail routes through the city. Based on these findings, develop policies and strategies to improve circulation and neighborhood compatibility issues.

CC1.E Adopt and implement transportation plans in accordance with the Napa Valley Transportation Authority's (NVTA) Strategic Transportation Plan to increase transit service and ridership in St. Helena and connections with County transit services.

CC1.F Establish programs to reduce vehicle miles traveled by supporting local hiring, food production, farmers' markets, and community-based "buy local" campaigns. For General Plan purposes, "local" includes St. Helena and its residents, as well as the residents and areas of the surrounding towns and unincorporated County that have traditionally been served by St. Helena's commercial and retail services.

topic area
1 TRANSPORTATION AND MOBILITY

CC1.G Evaluate parking standards to help reduce vehicle miles traveled and reduce vehicle idling.

CC1.H Increase walkability and bikeability to encourage a reduction in local auto trips. Strengthen outreach to increase awareness of pedestrian and bicycle amenities throughout the city.

CC1.I Require discretionary development projects to assess and mitigate the impacts of vehicle miles traveled using transportation demand management programs, including providing transit amenities.

CC1.J Initiate programs that encourage car-free tourism through incentives, outreach, awareness, and creating a bicycle and pedestrian-friendly environment.

CC1.K Adopt and implement programs to assist businesses and organizations switch from fossil fuel-powered fleet vehicles to vehicles powered by clean, renewable energy sources.

CC1.L Develop parks and open spaces in support of efforts to create walkable, bikeable mixed-use neighborhoods, especially to complement higher-density development and connect lower-density areas.

CC1.M Design and operate the public street system to optimize fuel efficiency. Consider fuel efficiency in the design of street extensions, connections, and right-of-way controls at intersections, and monitor and adjust traffic signals.

Policies

CC2.1 Encourage measures to reduce energy demand through conservation and efficiency.

CC2.2 Support local efforts to improve the energy supply by switching from fossil fuels to renewables.

Transit agencies in some parts of the state are building their fleets with buses that use natural gas and other alternative fuel sources.

Implementing Actions

CC2.A Partner with the County of Napa to implement an AB811 program that makes funding available to residential and commercial property owners seeking to improve their properties to conserve energy and water, and to generate solar energy.

CC2.B Pursue state and federal funding programs designed to reduce energy demand through conservation and efficiency.

CC2.C Implement Title 24 energy conservation standards for new buildings, and other State building code standards for high performance "green" buildings. Utilize established green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green.

CC2.D Continue to reduce energy use by promoting domestic water conservation and requiring water-efficient landscape improvements associated with new construction.

CC2.E Reduce greenhouse gas emissions from buildings and energy use. Require or request that new development projects analyze greenhouse gas emissions due to energy use and incorporate energy and safe yield water conservation measures into projects.

topic area
2 BUILDINGS AND ENERGY

CC2.F In support of countywide energy generation efforts, increase local renewable energy generation. Adopt production standards for the City based on quantifiable measures that increase per capita generation levels.

CC2.G Remove regulatory impediments and economic disincentives associated with the generation and use of energy from renewable sources, such as wind, geothermal, and solar energy.

CC2.H Establish programs that encourage owners to retrofit existing structures to incorporate energy-efficient and "green" building standards.

(Also see the Community Design Element, Topic Area: 1)

New building technologies make it possible to reduce energy consumption and generate new energy using solar, wind, and water sources.

topic area
3 CONSUMPTION AND SOLID WASTE

Policies

CC3.1 Enhance recycling, composting, and source reduction services for residential and commercial uses to support Napa County's countywide waste reduction goal to achieve overall waste diversion of 75 percent to 90 percent by 2020.

(Also see the Public Facilities and Services Element, Topic Area: 4)

Implementing Actions

CC3.A Establish programs and create incentives to achieve a 75 to 90 percent citywide construction and demolition debris waste diversion level in support of Statewide goals.

CC3.B Establish programs and create incentives to achieve a 75 percent organic (food and green) waste diversion level in support of statewide goals.

CC3.C Establish citywide collection services for segregated food waste from commercial sources.

CC3.D Encourage home composting of organic waste.

CC3.E Create and support other programs, such as the Napa County Green Business Program and the green restaurant program, that help achieve the 75 to 90 percent overall waste diversion goal.

CC3.F Adopt environmentally-preferable purchasing measures and explore joint-purchasing agreements with partner agencies and businesses.

topic area
4 AGRICULTURE, NATURAL RESOURCES, AND URBAN FORESTS

Policies

CC4.1 Support efforts to protect and increase the amount of vegetation and biomass in soil and reduce emissions from agricultural sources.

CC4.2 Encourage responsible and sustainable agricultural and landscaping practices.

CC4.3 Strengthen water conservation measures that result in significant reductions in local water use and the protection of local water resources.

(Also see the Community Design Element, Topic Area: 1)

CC4.4 Support efforts to expand and improve the City's managed urban forest in order to reduce greenhouse gas emissions and improve overall air quality.

(Also see the Open Space and Conservation Element for additional policies and implementing actions relating to urban forests.)

CC4.5 Promote community gardens to reduce emissions generated in food transportation.

Wind turbines offer new opportunities for climate-friendly energy generation.

Implementing Actions

CC4.A Establish programs to support and encourage local agriculture, food production, and school and community gardens.

CC4.B Promote edible landscaping where possible.

CC4.C Establish programs and plans that create and enhance urban forests and greenways.

topic area
4 AGRICULTURE, NATURAL RESOURCES, AND URBAN FORESTS

CC4.D Assess the impact of land use changes, new vineyards, and urban development on carbon sequestration.

CC4.E Support efforts by local growers and restaurants to produce and use locally-grown food and remove associated regulatory hurdles.

CC4.F Revise ordinances to further protect habitat and mitigate the conversion of oak woodlands, natural resources, riparian habitat, and other important natural communities by permanently protecting similar habitats.

CC4.G Support and promote the Napa Green Certified Winery Program and the Napa Green Certified Land Program.

CC4.H Adopt landscape ordinances that promote drought resistant plants, and limit or restrict lawns and other high-water-demand plants unless irrigated with reclaimed or grey water systems.

CC4.I Develop and adopt energy-saving and environmentally-sound domestic water conservation plans.

CC4.J Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees especially native varietals when possible.

TOP *Local gardens help reduce the footprint of fruits and vegetables.*

BOTTOM *A boatload of trash illustrates how much waste enters natural ecosystems.*

topic area
5 COMMUNITY ENGAGEMENT

Policies

CC5.1 Support local efforts to market programs and conduct community outreach through schools, non-profit groups, community organizations, and the business community to increase participation in greenhouse gas (GHG) reduction efforts.

CC5.2 Engage and advocate for collaborative programs, policies, and legislative solutions at the regional, state, federal, and global levels to reduce global GHG emissions.

CC5.3 Expand local awareness about gardening, composting, and agriculture.

Incentives programs can help to encourage everything from green roofs to composting and recycling to reuse of materials.

Implementing Actions

CC5.A Partner with the St. Helena Unified School District, private schools, community-based non-profit organizations, and others to undertake public outreach and education efforts that broaden community involvement in reducing greenhouse gas emissions.

CC5.B Market and encourage participation in incentive programs that improve energy efficiency.

CC5.C Foster and build public-private partnerships that help achieve greater energy efficiency and reduce greenhouse gas emissions.

CC5.D Promote programs designed to advance sustainable business practices in St. Helena. Use the Napa County Green Business Program as a model for a City-based effort.

CC5.E Participate in and help develop effective regional, state, and federal solutions to reduce emissions.

topic area
5 COMMUNITY ENGAGEMENT

CC5.F Engage and assist local agencies and utility companies toward achieving greenhouse gas reduction targets.

CC5.G Enable long-term solutions by investing in and supporting science and engineering education.

CC5.H Support the United States' participation in international greenhouse gas reduction efforts.

CC5.I Establish an outreach program to raise public awareness about gardening, composting, and agriculture. Utilize public access television, the City's website, public notices, and workshops to engage a broad and diverse range of residents.

Farmers markets and community gardens provide residents with direct connections to the food supply.

topic area
6 LOCAL GOVERNMENT OPERATIONS

Policies

CC6.1 Ensure that the City leads by example in managing its local government operations while implementing the following policy directions:

- Encourage the reduction of fossil fuel consumption by local government operations.
- Improve energy efficiency, implement alternative and renewable energy solutions, and reduce greenhouse gas emissions in City and county facilities and operations.
- Reducing solid waste from City and County operations and facilities.

Community programs can help engage both adults and children in learning about their environments and about the impact of greenhouse gas emissions on the climate.

Implementing Actions

CC6.A Transition City fleets to vehicles powered by clean, renewable energy sources.

CC6.B Install electric vehicle charging stations with funding from state and federal sources.

CC6.C Encourage alternatives to agency employees' use of single-occupancy vehicles by providing bicycle racks, preferential parking permits for carpools and vanpools, commuter information, and other incentives.

CC6.D Conduct audits and regularly monitor the effectiveness of City and County energy efficiency implementation measures and adapt them to meet targets.

topic area
6 LOCAL GOVERNMENT OPERATIONS

CC6.E Convert street lighting, water pumping, water treatment, and other energy-intensive operations to more efficient technologies.

CC6.F Ensure that new municipal or substantially-renovated municipal facilities incorporate cost-effective strategies for reducing greenhouse gas emissions, conserving energy and water, and utilizing sustainable construction practices.

CC6.G Consider carbon emissions from the production, transportation, use, and disposal of goods as a criterion for City purchasing decisions.

CC6.H Establish a comprehensive, user-friendly recycling program that involves all City departments and facilities. Recover 70 to 85 percent of all waste generated in City operations.

CC6.I Install renewable energy systems at City facilities.

CC6.J Review and update the implementation actions recommended by the City's Climate Protection Task Force (CPTF) on an annual basis.

Collaboration between governmental entities, residents and community groups ensures that actions have significant impacts.

chapter eleven

housing

The 2015 - 2035 Housing Element is a separate stand alone document.
A copy is available on the City's website.

chapter twelve

parks and recreation

12 parks and recreation

A comprehensive network of parks and open spaces brings many benefits to the St. Helena community.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

12.1 Purpose of the Element

The Parks and Recreation Element presents a framework for developing and maintaining a comprehensive system of quality parks, pedestrian and bicycle trails, recreational facilities and programs. It aims to effectively guide the City's parks and recreation programming and to support community members' health, entertainment and high quality of life. Key to these efforts is increasing the overall acreage of useable, publicly accessible park space in St. Helena, and creating and maintaining a network of bicycle and pedestrian trails that establishes connections from residential neighborhoods to parks, schools, and goods and services.

The Parks and Recreation Element includes the following sections.

- **12.2 Parks and Recreation Framework for St. Helena**. Summarizes key issues related to parks and recreation in St. Helena (p. 12-3).
- **12.3 Key Findings**. Identifies key findings based on an existing conditions analysis and extensive community outreach (p. 12-12).
- **12.4 Goals**. Defines overarching goals to guide policies and implementing actions (p. 12-14).

- **12.5 Policies and Implementing Actions**. Identifies policies and implementing actions to expand and maintain a comprehensive parks and recreation system (p. 12-15).

To supplement the policies and implementing actions included here, additional policies and actions associated with the provision of trails, the urban/agricultural interface, and the maintenance of open space for recreation can be found in the Open Space and Conservation Element.

The historic gazebo at Lyman Park is a favorite site for parties and events.

12.2 Parks and Recreation Framework for St. Helena

The St. Helena community has expressed the desire for a comprehensive and integrated system of parks and recreational facilities to meet residents' diverse recreational needs. The system can include parks, open spaces, and community facilities linked together along natural creek corridors and pedestrian-friendly streets. In addition, these parks and recreational resources can develop concurrently with pedestrian and bicycle improvements that link neighborhoods and connect the community to key destinations throughout the city. Figure 12.1 is a map that illustrates the array of parks and recreation facilities that currently exist in St. Helena. Together, these assets present opportunities to build the desired network of parks, open spaces, and recreational amenities for current and future residents.

12 parks and recreation

A comprehensive parks and recreation system includes parks, open spaces, and community facilities linked together.

NETWORK OF PARKS AND RECREATION AMENITIES

For St. Helena, a comprehensive parks and recreation system includes parks of various sizes, community gardens, community orchards, community and recreational facilities, accessible open space, a variety of natural features, and connectors such as paths, trails, and green streets. By enhancing these amenities and the connections that link all the components together, St. Helena can create a valuable resource system that helps to fulfill the desired characteristics that residents have identified for their community. These include equitable access to open space and community facilities, a strong connection to agriculture, environmental sustainability, and community livability.

PARK CLASSIFICATION SYSTEM

This General Plan establishes a parks classification system for St. Helena composed of three general park types: parklets/mini parks, neighborhood parks, and community parks (see Table 12.1).

- **Mini Parks / Parklets** – small, limited use sites generally less than 1 acre in size. They vary from small greens with open grass areas, children's playgrounds, or small picnic spaces, to small squares and plazas.
- **Neighborhood Parks** – mid-sized parks intended to serve nearby residents living within a ½-mile radius. They are primarily designed for informal, unsupervised recreational activities and typically feature facilities such as children's playgrounds, picnic areas, pathways, open grass areas for passive use, outdoor basketball courts, and non-lighted, multi-use ball fields. Neighborhood parks generally range from 4 to 10 acres in size.
- **Community Parks** – larger facilities intended to serve residents living within a 1- to 2-mile radius. They are generally more than 10 acres in size and designed with a sports field or similar facility that provides active and structured recreation opportunities as the central focus, although they can also provide opportunities for passive recreation. Community parks attract people from a wider geographic area than neighborhood or mini parks and require ancillary facilities such as parking, lighted sports fields, and restrooms. A community park can also function as a neighborhood park for nearby residential areas.

While the General Plan provides over-arching guidance for parks and recreational facilities in the community, a comprehensive parks master planning process will provide an opportunity to further delineate St. Helena's park types and performance standards, identify long-term goals for the community, describe current and future needs and community preferences, and prioritize parks and recreational facilities improvement needs.

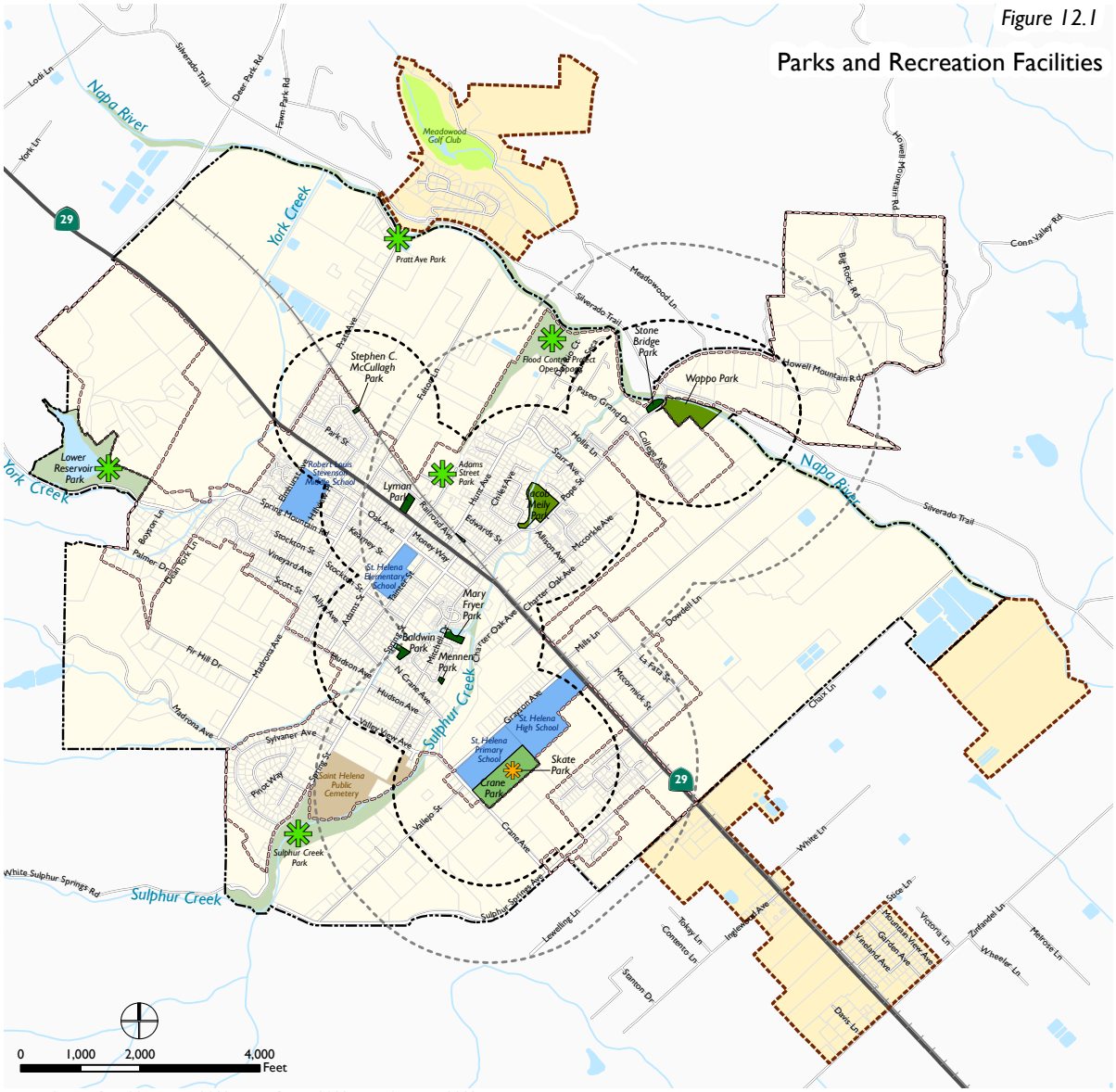
TABLE 12.1: St. Helena Parks by Park Category

Category	Park	Acres	Site Characteristics
Mini	Baldwin Park	0.76	Mowed grass; picnic tables; handicapped accessible from Voorhees Circle.
	Lewis Station	0.13	"Pocket Park" with picnic tables, benches, and restroom.
	Lyman Park	0.89	Picnic tables; grassy areas; children's play area; gazebo for events; one restroom.
	Mary Fryer Park	0.84	Picnic tables; play equipment designed for pre-school-aged children.
	Mennen Park	0.17	Nut and fruit trees, barbeque amenities, walking paths, grassy areas
	St. Helena Skate Park	0.41	Skatepark
	Stephen C. McCullagh Park	0.14	Sandbox, climbing rock and rope structures, benches, play area
	Stonebridge Park	0.75	Located on the Napa River; grassy areas with limited parking.
Neighborhood	Jacob Meily Park	5.42	Play field; heritage orchard, picnic area, children's playground, and restroom.
	Wappo Park	6.65	Trail and picnic facilities.
Community	Crane Park	11.27	Six lighted tennis courts; six lighted bocce courts; two Little League baseball fields; horseshoe pits; children's playground; two restrooms; picnic areas; Farmer's Market; and skate park.

Sources: City of St. Helena, 2018; Dyett & Bhatia, 2018.

Figure 12.1

Parks and Recreation Facilities



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- Skate Park
- Potential new park site
- Parks Quarter Mile Service Radius
- Parks Half Mile Service Radius
- Mini Park
- Neighborhood Park
- Community Park
- Open Space
- Golf Course
- Public Schools
- Cemetery
- Urban Limit Line
- Study Areas
- City of St. Helena

CONCEPTS, TRENDS AND IDEAS

The Many Benefits of Parks and Recreation

In recent decades, cities and counties have paid greater attention to the many benefits of parks. Cities have adapted their marketing strategies to focus less on the defining physical features of parks and more on how parks benefit the entire community. The Benefits Movement was introduced by the National Recreation and Park Association in the mid-1990s; this movement has been defined as "an ongoing process by leisure service providers to identify desirable individual, economic, community and environmental benefits derived from recreational experiences, including the assignment of resources to address and promote these benefits and their outcomes."

Personal and Community Benefits

Evidence indicates that people tend to exercise more when they have access to parks and open spaces, thereby increasing health and reducing the risk of many physical, life-threatening conditions. Studies also show that providing access to parks and the outdoors creates benefits for psychological health. Physical activity is commonly known to relieve symptoms of depression and anxiety.

Parks provide spaces for outdoor play for children and in turn support their physical, behavioral and cognitive development. By providing engaging recreational opportunities for St. Helena's children and youth, parks and recreation systems can promote healthy and active play.

Children's play environments support physical, behavioral and cognitive development and promote healthy and active play.

Top: The St. Helena's Farmers Market attracts residents and vistors in support of local and regional agriculture and commerce.

Bottom: Parks designed to showcase natural amenities can bring life to a neighborhood and provide important environmental benefits.

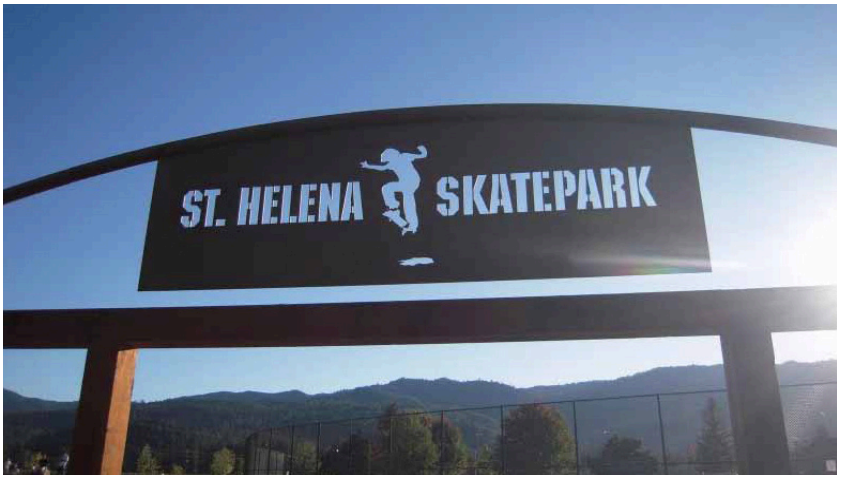
Economic Benefits

A healthy parks and recreation system is very important to local economic development. The availability of accessible open space is an issue that is central to quality of life, as access to open space is an important factor that people consider when choosing where to live or establish their business. Recreational amenities, including parks and green spaces, can help increase the value of nearby properties. Therefore, parks bring economic benefits to individual property owners and businesses and strengthen the local tax base, generating more revenue for public services and facilities, including new parks and open spaces.

Environmental Benefits

Open space and park lands can provide multiple environmental benefits for local communities. Parks help preserve ecologically and historically significant natural resources, in part through the preservation of wildlife habitat. Parks can also help to protect significant historic features of the natural landscape and play an essential role in protecting water and air quality. For example, green spaces help filter and reduce storm water run-off from more developed areas. Parks with healthy tree canopies help capture carbon dioxide and other polluting gases. By working to build an interconnected network of green corridors and open spaces, parks planners can help repair and restore ecosystems rather than detract from them.

12 parks and recreation



The St. Helena Skatepark, located in Crane Park, is a popular spot for teens.

RECREATION FACILITIES AND PROGRAMS

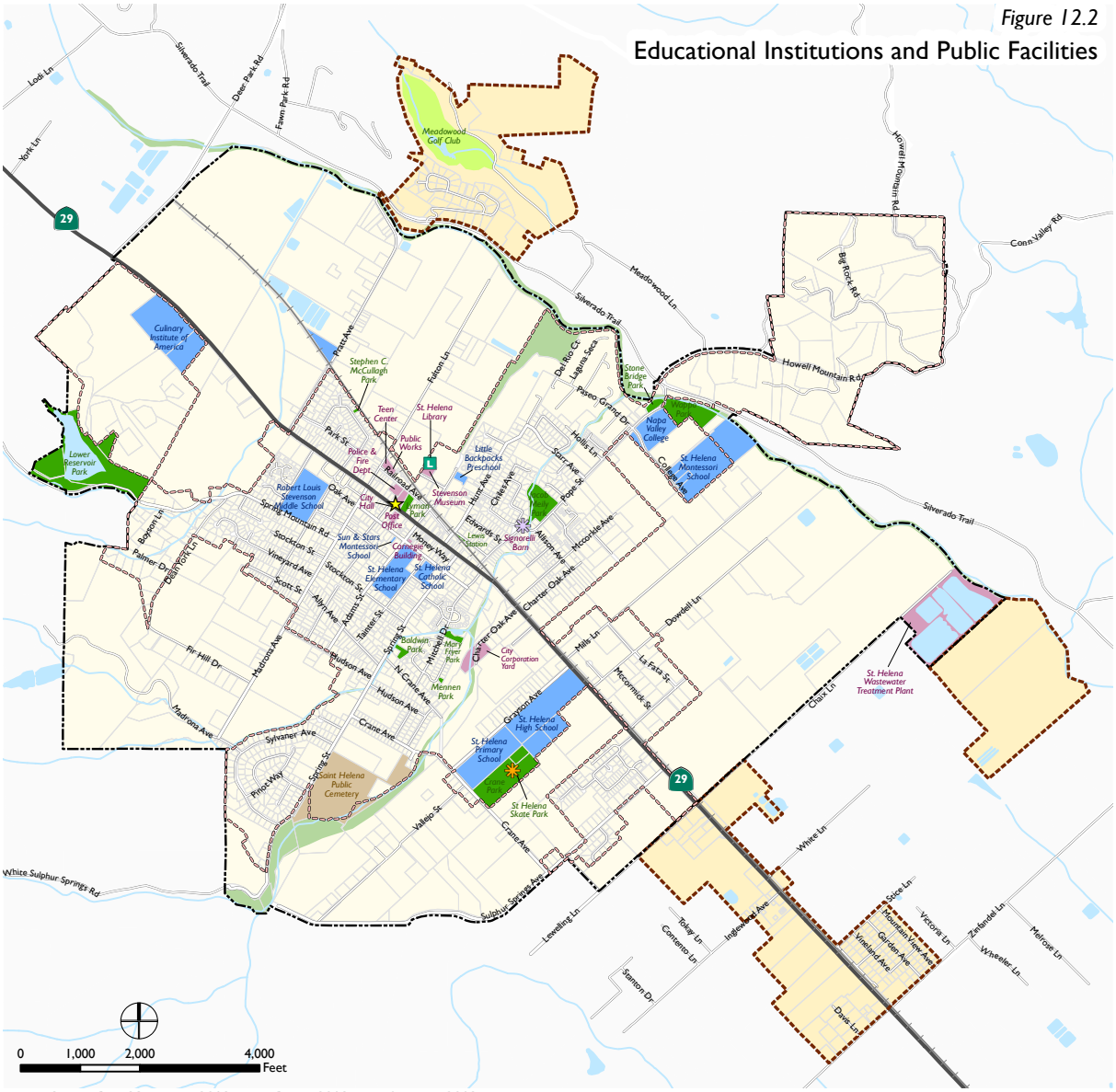
The City of St. Helena offers an array of recreational programs and services to residents. Programs include youth sports and summer enrichment programs, a middle school teen program, and recreational opportunities for adults and seniors. Local community centers, schools, parks, and recreation facilities, shown on Figure 12.2, host many of these programs. Key recreational facilities include a newly-constructed skate park, teen center, bocce courts, athletic fields, a dog park, a community garden, a public vineyard, and a community swimming pool.

As the city evolves, it will be important to ensure that these programs and services continue to respond to the changing demographics, interests, and needs of residents. By conducting regular citywide needs assessments in conjunction with the creation of a parks and recreation master plan, the City can update, revise, and develop new programs to accommodate the evolving needs of the community.

In addition, conducting regular needs assessments will provide opportunities to evaluate the location of parks and recreation facilities in the city to ensure that residents have safe, walkable, and equitable access to key recreational facilities, and that these facilities continue to provide a high level of service.

Figure 12.2

Educational Institutions and Public Facilities



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

- City Hall
- Library
- Signorelli Barn
- Skate Park
- Educational Facilities
- Parks
- Cemetery
- Public Facilities
- Open Space
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

GENERAL PLAN UPDATE
City of St. Helena

DYETT & BHATIA
Urban and Regional Planners

Residents enjoy a sunny day of bocce ball at Crane Park.

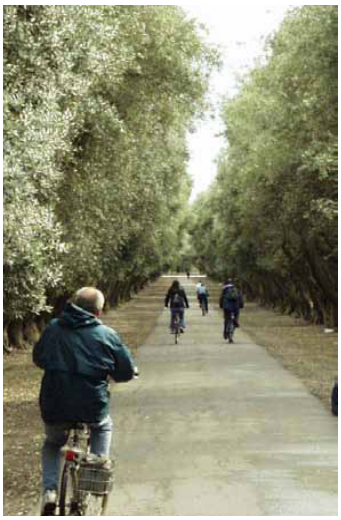
12.3 Key Findings

There are several challenges and opportunities facing St. Helena related to parks and recreation. The following key findings are based upon comprehensive existing conditions analysis and community input.

- Since the 1993 General Plan Update, the City has developed a number of new parks: Meily Park, centrally located on Pope Street on the east side of State Route 29; the Constantini property was added to Crane Park, creating the space for additional parking and improved vehicular access; and Wappo Park, which includes a dog park, was completed in 2012.
- With approximately 27 acres of parkland and a population of 5,900 in 2018, St. Helena's current ratio is 4.7 acres of parkland per 1,000 residents; however, the General Plan identifies additional acreage for future parks to meet the target of 5.0 acres per 1,000 established in this Plan. Notably, the Lower Reservoir, owned by the City, and open space areas along Sulphur Creek present opportunities to add significant acreage to the park system, and help achieve local and national park standards.
- State legislation known as the "Quimby Act" allows cities to set a standard of up to 5 acres of parkland per 1,000 population for purposes of formulating a park impact fee for new development. By requiring new development to dedicate parkland pursuant to the Quimby Act, the City can help ensure

that adequate parkland is available to meet the needs of the community as development is approved.

- Community members have strongly voiced the need for additional active recreation facilities to meet community needs, advocating in particular for increased and improved soccer facilities. Working with local schools and other groups in the community to identify new park sites where soccer facilities may be located to address the need.
- St. Helena offers a variety of recreational programs; including adult and youth sports leagues and camps, bocce, belly dancing, dog obedience, and summer programs for students at a range of grade levels. Recent efforts to raise funds for a skate park were successful and the park was opened in the fall of 2009. Expanding offerings to include programs in the creative and performing arts for residents of all ages and abilities can augment the City's current programs and encourage even greater participation.



St. Helena envisions a complete network of bicycle and pedestrian trails that connect residents and visitors to the places they want to go.

"Pocket parks" such as Lewis Station are fundamental to a comprehensive and interconnected parks system, especially in communities with limited opportunities to develop large, multi-acre parks.

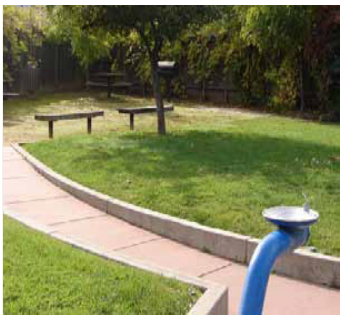
12.4 Goals

Provide High-Quality Parks and Recreation Services. St. Helena is dedicated to providing high-quality park facilities and recreation programs that meet the needs of residents of all ages and abilities, while efficiently managing fiscal resources and accommodating community priorities.

Achieve at a minimum the City's standard of 5.0 acres of parkland per 1,000 population, which is the maximum park ratio that can be used in establishing a park impact fee under the State legislation known at the Quimby Act. Despite the limitations imposed on the City by the Quimby Act, it is the City's ultimate goal to attempt to achieve the nationally recommended standard of 10.5 acres of park land per 1,000 residents.

Develop a System of Interconnected Bicycle and Pedestrian Trails. The City is committed to providing residents and visitors with opportunities to walk or bicycle throughout the city and the Napa Valley region, while promoting city-wide efforts to encourage participation in active, healthy alternate modes of transportation.

12.5 Policies and Implementing Actions



A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. A Comprehensive and Interconnected System of Parks;
2. Equitable Park Distribution and Access;
3. Urban/Agricultural and Parks Interface;
4. Park Facilities and Recreation Programs;
5. Community Participation and Partnerships; and
6. Bicycle and Pedestrian Amenities.

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

Funding and maintenance of existing parks and development of new parks are both necessary to ensure safe and convienent access to outdoor recreation.

topic area
1 A COMPREHENSIVE & INTERCONNECTED SYSTEM OF PARKS

Policies

PR1.1 Retain the park standard from the 1993 General Plan of 5.0 acres of parkland per 1,000 residents, while striving for the nationally recommended standard of 10.5 acres per 1,000 residents.

PR1.2 Enhance the community's quality of life and ensure a widely accessible environment through the provision of a citywide system of parks and open spaces. Identify and develop linkages, corridors, and other connections to provide an aesthetically pleasing and functional network of parks, open space areas, and bike paths throughout the city.

PR1.3 Identify park land opportunity sites to ensure that the City can meet and possibly exceed its parkland standard of 5.0 acres per 1,000 residents. Locate new parks to ensure that City park facilities are equitably distributed throughout all areas of the city and residents of all ages can access them safely and conveniently.

PR1.4 Require park land dedications or civic improvement fees on all new residential, commercial, and industrial developments to meet the standard of 5.0 acres of parks per 1,000 residents.

PR1.5 Ensure adequate funding to acquire new park lands as they become available.

PR1.6 Develop new parks only after existing parks have received adequate funding and maintenance.

The interconnection and accessibility of parks and facilities should be central goals of a Parks and Recreation Master Plan.

topic area
1 A COMPREHENSIVE & INTERCONNECTED SYSTEM OF PARKS

Implementing Actions

PR1.A Develop a comprehensive, long-range Parks and Recreation Master Plan to aid the City in creating an integrated system of parks. The plan should be updated periodically to address changing recreation interests, trends, needs, and priorities. The Parks and Recreation Master Plan should:

- Identify long-term goals for the Parks and Recreation Department and the community;
- Describe current and future needs, interests, and community preferences for improving new parks and community facilities, and expanding or initiating new programs and services;
- Present a long-range plan for physical park and community facility improvements;
- Define performance standards (such as park function, size, and service area radii) and further develop park design guidelines and criteria;
- Prioritize projects;
- Identify the proportion of Civic Improvement Fees that will be contributed to the development and maintenance of parks and recreational facilities; and
- Outline funding mechanisms and strategies for managing the City's commitments, so that new requests and initiative are considered in light of existing commitments

Subsequent actions in this Element may be included in the Parks and Recreation Master Plan.

topic area
1 A COMPREHENSIVE & INTERCONNECTED SYSTEM OF PARKS

PR1.B Create opportunities to develop additional parks at the following locations:

- The City-owned land along the Napa River and Pratt Avenue for passive recreational uses;
- Land adjacent to York and Sulphur Creeks, as well as the Napa River levee;
- The water treatment plant site;
- The City-owned Lower Reservoir area for a water-oriented community park and recreational facility; and
- Ensure that new parks are developed to include bicycle and pedestrian trails.

PR1.C Identify a variety of funding sources for new parks and park improvements, including park land dedication, in-lieu fees, and regional, state, and federal grant programs, public/private partnerships, public/public partnerships with the St. Helena Unified School District, Conservation easements for public use, as well as other City funding sources.

PR1.D Strive to acquire additional park land to meet or exceed the minimum standard of 5 acres of parkland per 1,000 residents and, ultimately, to achieve the target of 10.5 acres per thousand residents.

PR1.E Develop a comprehensive network of bicycle and pedestrian trails that links the City's parks and enhances bicycle and pedestrian connectivity throughout the city and the region.

PR1.F Mandate City park land dedication requirements for new infill projects. Include specific park acreage and use requirements according to the type, scale, and population and increase of new development. Consider in-lieu fees for small infill projects.

topic area
2 EQUITABLE PARK DISTRIBUTION AND ACCESS

Policies

PR2.1 Distribute parks and recreational facilities throughout the city to ensure that all residents have convenient access to parks and recreational programs and facilities.

PR2.2 Construct new parks and recreation facilities to accommodate community needs.

PR2.3 Ensure that parks and recreation programs have safe and convenient access.

Focus on creating a parks and recreation system that is accessible to all residents.

topic area
2 EQUITABLE PARK DISTRIBUTION AND ACCESS

Implementing Actions

PR2.A Prioritize the construction of new parks and recreation facilities to ensure that they are distributed equitably to all areas of the city. Park and recreation facility development studies should include the potential impacts of development on surrounding natural resources and agricultural areas.

PR2.B Encourage the inclusion of pocket parks that include amenities, such as picnic tables, restrooms, shade and recreation spaces near retail, commercial, and industrial areas.

PR2.C Locate parks and recreation facilities in areas that are easily accessible by public transportation, as well as cars, bicycles, and pedestrians.

PR2.D Where possible, ensure that recreation programs and access to facilities are provided at costs affordable to all St. Helena residents.

PR2.E Develop and implement a list of planned parks and recreation facilities.

PR2.F Identify community locations that are not within a 10-minute walk of a park or recreation facility. Develop parks in the identified areas to ensure an equitable distribution of parks citywide.

PR2.G Encourage the development of parklets throughout the city.

PR2.H Encourage the development of linear parks throughout the city.

Active recreation is an important part of community life for many St. Helena residents.

topic area
3 URBAN/AGRICULTURAL AND PARKS INTERFACE

Policies

PR3.1 Ensure that the design and development of parks and recreation facilities preserves viewsheds and creates a buffer between urban and agricultural uses, where necessary.

PR3.2 Protect sensitive habitat, agricultural land, and open space when planning and maintaining City park lands.

PR3.3 Support local wildlife conservation efforts by incorporating habitat elements in urban/agricultural interface areas and ensuring the protection of migration corridors.

Protecting sensitive agricultural land and preserving viewsheds are important elements of park and facility design and development.

topic area
3 URBAN/AGRICULTURAL AND PARKS INTERFACE

Implementing Actions

PR3.A Develop design guidelines for recreational facilities that preserve viewsheds and maintain a transition buffer between urban and agricultural uses. Include specific design criteria regarding recreational trails and picnic areas adjacent to agricultural uses.

PR3.B Identify locations where new recreational programs and facilities may be constructed.

PR3.C Design and locate new parks to minimize noise and activity impacts on nearby agricultural and residential uses. This includes requiring context-sensitive site designs that minimize negative impacts on surrounding uses, such as pathway and picnic area locations, ball field usage and park lighting.

PR3.D Provide habitat elements in urban/agricultural interface areas. Habitat elements may include roosting trees and nesting boxes for birds, bats, and other wildlife, as appropriate.

topic area
4 PARK FACILITIES AND RECREATION PROGRAMS

Policies

PR4.1 Develop systematic and comprehensive plans to guide the development and operation of City parks and recreational programs.

PR4.2 Balance preservation, education, recreation, and public health and safety in park and open space planning.

PR4.3 Provide park areas for residents of all ages to meet a variety of recreational and social needs, including: seniors; formal, active uses; passive uses that allow for interaction with natural landscapes; and interpretive programs that highlight geomorphology, ecology, cultural resources, agricultural heritage, and historic preservation.

PR4.4 Ensure that all parks and recreational facilities are attractive, safe, and well-maintained with adequate lighting.

PR4.5 Prioritize park acquisitions and improvements that expand and enhance St. Helena's active recreation facilities and programs to accommodate diverse community needs and interests.

The St. Helena Recreational Facility provides opportunities for residents to create and give back to the community, to make healthy choices, to learn, and to grow.

topic area
4 PARK FACILITIES AND RECREATION PROGRAMS

Implementing Actions

PR4.A If feasible, revise and update the City's recreation program in order to enhance existing programs and/or develop new programs.

PR4.B Promote design guidelines for the development of parks and recreation facilities. Design parks and recreation facilities that are attractive, safe, and easy to maintain. This action may be included in a Parks and Recreation Master Plan.

PR4.C Identify locations to accommodate active recreational uses to meet city-wide needs. Potential locations include:

- Bicycle and pedestrian trails, interpretive areas, trail heads, and comfort stations along York and Sulphur creeks and the Napa River; and
- A community park at the City-owned Lower Reservoir area

PR4.D Support opportunities to involve children and youth in a participatory planning process for the planning, design, construction, and maintenance of City parks.

PR4.E Design children's play areas to include shade and wind protection.

PR4.F Provide multi-purpose event spaces for events in the park system, where possible.

PR4.G Install art designed by local artists in parks, where possible.

PR4.H Encourage the development of soccer fields, multi-sport facilities and open access to a community pool.

PR4.I Identify key improvements to existing parks, such as parking, picnic facilities, restrooms, tot lots with play structures, and multi-modal access points. This action may be included in a Parks and Recreation Master Plan.

Jacob Meily Park's playground and turf area accommodate active recreational uses for children and adults alike.

topic area
5 COMMUNITY PARTICIPATION AND PARTNERSHIPS

Policies

PR5.1 Encourage partnerships with local organizations and the private sector to provide, develop and maintain parks, recreation facilities, and programs.

PR5.2 Ensure that a broad cross-section of St. Helena stakeholders participates in the planning, design, and maintenance of parks and recreational amenities.

PR5.3 Encourage volunteerism, mutual responsibility and community spirit to set the tone that St. Helena's public parks and open spaces belong to everyone.

Community volunteerism and stewardship are essential to creating safe, clean and accessible parks and recreational facilities for St. Helena residents.

topic area
5 COMMUNITY PARTICIPATION AND PARTNERSHIPS

Implementing Actions

PR5.A Emphasize joint planning and cooperation with all public agencies as the preferred approach to meeting St. Helena's parks, facilities and program needs.

PR5.B Mandate City parkland dedication requirements for new infill projects. Include specific park acreage and use requirements according to the type, scale and population and increase of new development. Consider in-lieu fees for small infill projects.

PR5.C Provide local organizations, the St. Helena Unified School District and the private sector with opportunities and support for creating and implementing solutions to meet the City's parks and recreation facilities' needs.

PR5.D Cooperate with local groups in designing and constructing recreation facilities. Where possible, coordinate recreation and child care programs and facilities with school district programs.

PR5.E Negotiate joint-use agreements for recreation facilities with the St. Helena Unified School District.

PR5.F Involve the private sector in providing and maintaining parks and recreation facilities through formal agreements with the City and in sponsoring increased volunteerism.

topic area
5 COMMUNITY PARTICIPATION AND PARTNERSHIPS

PR5.G Investigate the feasibility of creating a non-profit foundation to seek and receive funds for the support of parks and recreation programs. Look to St. Helena's successful library foundation as a local model.

PR5.H Foster neighborhood park planning committees, including neighborhood residents, business owners, and representatives from local groups to help plan, design, and maintain parks and recreational facilities.

PR5.I Work with community members and representatives of local sports organizations to define facilities needs as community needs change with time.

PR5.J Develop a public outreach program to involve community members in park maintenance and upkeep, and in mitigating vandalism. Create park signage to encourage responsible use of parks, and partner with the police force to support enforcement efforts.

topic area
6 BICYCLE AND PEDESTRIAN AMENITIES

Policies

PR6.1 Promote walking and bicycling as safe and convenient modes of transportation.

PR6.2 Develop a comprehensive network of bicycle and pedestrian trails to enhance bicycle and pedestrian connectivity throughout the city and the region. *(Also see the Community Design Element, Topic Area 4)*

PR6.3 Promote the inclusion of bicycle and pedestrian trails, and bicycle lanes throughout the city, as well as connections to regional trail systems, such as the Napa Valley Vine Trail.

PR6.4 Carefully evaluate whether new bicycle and pedestrian trails can be developed and enjoyed without significant environmental risk to nearby sensitive habitat, including fish habitat.

PR6.5 Ensure that new bicycle and pedestrian trails near actively farmed agricultural areas are developed in a manner that minimizes risk of injury to pedestrians and cyclists from active farming operations.

Bicycle amenities in parks encourage community members to bike more often.

topic area
6 BICYCLE AND PEDESTRIAN AMENITIES

Implementing Actions

PR6.A Develop and adopt a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena's existing partnership with the Napa Valley Transportation Authority (NVTA) to ensure that the City's master plan is consistent with countywide transportation planning efforts. *(Also see the following elements: Circulation, Topic Area 2; Open Space and Conservation, Topic Area 2)*

PR6.B Develop guidelines for the design, construction, and maintenance of bicycle and pedestrian trails in St. Helena. Include guidelines for installing context-sensitive and solar lighting, and mitigating noise impacts from the trails. Include guidelines for wayfinding and interpretive exhibits that use signs, art, and other visual clues to enhance users' experiences. Highlight the rich history of the City and provide education and information for users. Coordinate the guidelines with Napa County or regional trail connections.

PR6.C Develop and adopt an ordinance that requires new development and redevelopment projects to provide bicycle and pedestrian improvements and amenities.

PR6.D Endeavor to secure easements or title to land along Sulphur Creek, York Creek, and the Napa River.

PR6.E Coordinate with countywide efforts to establish regional trail systems through the city limits.

PR6.F Develop a maintenance and operations plan for the City's trail network. Provide a high level of service to users by preventing deterioration, encroachment of vegetation, vandalism and crime. Consider including an Adopt-a-Trail program and invite local businesses to participate in trail maintenance. Include a funding program to support the plan.

chapter thirteen

arts, culture and entertainment

13 arts, culture and entertainment

Visual arts and music represent the two largest segments of the arts and culture sector in Napa County.

1 introduction
2 land use and growth management
3 economic sustainability
4 public facilities and services
5 circulation
6 historic resources
7 community design
8 open space and conservation
9 public health, safety and noise
10 climate change
11 housing
12 parks and recreation
13 arts, culture and entertainment

13.1 Purpose of the Element

The Arts, Culture, and Entertainment Element is not a State-required General Plan Element; however, it presents St. Helena's approach to reinforcing the City's unique identity and character through integrating arts, culture, and entertainment into the community's everyday life. The intent of this Element is to preserve and protect the community's heritage and cultural resources, celebrate its vibrant social fabric, and expand opportunities for arts enrichment. By supporting City leadership, active community participation, and strategic partnerships, this Element creates the foundation for ensuring that the arts flourish, while reinforcing St. Helena's unique character and identity.

The Arts, Culture and Entertainment Element includes the following sections.

- **13.2 Arts, Culture, and Entertainment in Napa County St. Helena**. Describes key community arts, culture, and entertainment issues (p. 13-3).
- **13.3 Key Findings**. Identifies key findings based on an existing conditions analysis (p. 13-8).
- **13.4 Goals**. Defines overarching goals to guide policies and recommendations (p. 13-11).

- **13.5 Policies and Implementing Actions**. Identifies policies and implementing actions to stimulate arts, culture and entertainment programming and contribute to the City's livability (p. 13-12).

Arts provide opportunities for intergenerational collaboration and can serve as important outlets of expression for youth.

13.2 Arts, Culture, and Entertainment in Napa County and St. Helena

Napa County has a rich arts, culture, and entertainment sector that includes independent artists, theater companies, and arts organizations. Regional arts and cultural resources are rooted in a long-standing and celebrated history of craftspeople and artisans throughout the Napa Valley. St. Helena shares an important part of this history and is closely connected with regional organizations, including the Arts Council Napa Valley and the Napa County Arts Commission.

The City of St. Helena has the greatest number of arts resources per capita in the Napa Valley and is home to the county's largest community of arts practitioners, particularly in the fine, visual, performing, literary and culinary arts. In addition, the city is a culturally diverse community that has drawn residents from around the world since its earliest days. St. Helena strives to continue to be a place where artistic expression and cultural diversity can flourish, and where an array of multi-faceted and ever-evolving art forms are created, performed, taught and exhibited.

Artistic and cultural festivals, performances and exhibitions are significant both socially and economically, for visitors and residents alike. They provide opportunities to celebrate the community's rich history and creative talent. In turn, residents stand to benefit from the exposure to new ideas that may result from participation in such events and activities. Ensuring that City arts, culture and entertainment policies support a wide array of media can broaden the overall impact of the arts on St. Helena's cultural growth and local economic development efforts.

13 arts, culture and entertainment

COMMUNITY EDUCATION AND ENGAGEMENT THROUGH ARTS, CULTURE, AND ENTERTAINMENT

The arts can play a central role in strengthening community pride, engaging community members in social and cultural activities and events and increasing community awareness about the histories and legacies of the Valley's natural landscape and its people. The arts also bring people together to celebrate, learn about, and preserve contributions to the City's contemporary culture, economy, and urban form. Opportunities abound in St. Helena to facilitate this type of interaction and exchange. Similarly, by partnering with the St. Helena Historical Society and local Native American groups, St. Helena can encourage the development of a series of historical tours, interpretive walks, and special events to celebrate the City's earliest history and people.

The arts also provide opportunities for intergenerational partnerships and collaboration and can serve as important outlets of expression and creativity for youth. Arts community representatives have expressed the need to reconnect young people to the arts. According to an Arts Council Napa Valley survey conducted in 2007, of the vast majority of Valley artists are over the age of 35. In effect, the future of the arts community depends on engendering arts appreciation and participation in local youth. Local artists seek to strengthen art programming in local schools and build partnerships between schools and local arts organizations. The City can provide additional support for school and after school-based arts programming through expanded Recreation Department arts offerings and increase funding to local arts organizations who offer arts programs to youth.[1]

1 *Arts Council Napa Valley. A Community Cultural Plan for Napa County. 2007.*

In 2008, more than 450 people attended the first St. Helena Dia de los Muertos celebration, a jointly-hosted event sponsored by local arts and family organizations. The event not only featured arts and crafts but also highlighted the heritage of the City's vibrant Latino community.

The performing arts are important for St. Helena both socially and economically.

In 2017, Napa Valley's arts and culture community came together at St. Helena's Lyman Park for "Arts in the Streets," with participation from the Robert Louis Stevenson Museum, Napa Valley Cooking School, the Napa Valley Writer's Conference, and Nimbus Arts, a community-owned nonprofit organization that aims increase the Napa Valley Community's access to arts.

Since 1981, St. Helena's Napa Valley College – Upper Valley Campus has hosted the annual Napa Valley Writers' Conference, an internationally-recognized literary gathering and educational event that attracts world-class poets and authors. Strengthening public awareness about the conference and supporting linkages between local schools and arts organizations can maximize the educational, cultural and economic development impacts of this important event to the City.

TOURISM AND LOCAL IDENTITY

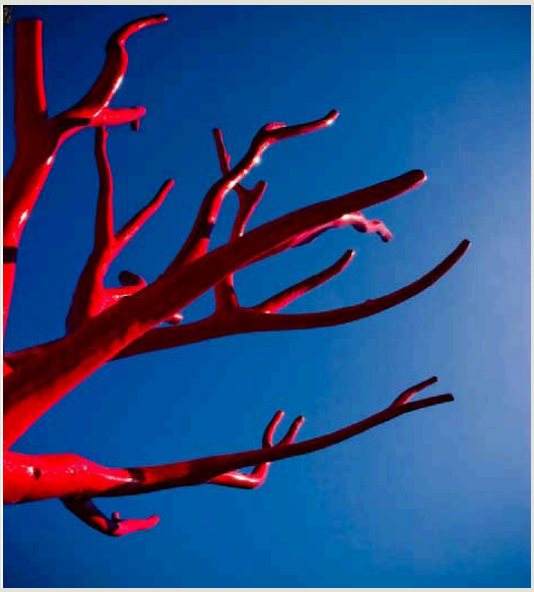
The Napa Valley is known as a world-class food, wine, and lifestyle destination, and tourism is a strong economic driver of the local economy. The Valley's arts sector also has a role to play in local economic development, as national data indicate that cultural tourists tend to spend more and stay longer than other tourists.[2] By encouraging public arts funding, installations and events, including the earmarking of public funds, the City can capitalize on the potential of the arts to generate cultural tourism and contribute to economic development efforts that support local artists and businesses.

Public art can also play a significant role in enhancing community design, creating visual interest in a neighborhood, and also showcasing regional or local talent. Creating an Art in Public Places Program can help advance the goal of the City to establish the arts as an integral part of St. Helena's identity. This program can also expand St. Helena's national attention to more sectors outside of the well-established food and wine industry, demonstrate the City's commitment to leadership in public arts, pay homage to St. Helena's rich history, and provide a mechanism for meaningfully involving citizens in the design of the City's public spaces.

2 *Hargrove, C. (2014). Cultural Tourism: Attracting Visitors and their Spending(Rep.). Retrieved https://www.americansforthearts.org/sites/default/files/pdf/2014/by_program/reports_and_data/toolkits/cultural_districts/issue_briefs/Cultural-Tourism-Attracting-Visitors-and-Their-Spending.pdf*

CONCEPTS, TRENDS AND IDEAS

The Benefits of Art in Public Places



Top: Public art can add color to an urban setting and create a visual point of interest for passersby.

Bottom: The Cultural Citizen Tree in San Jose's St. James Park is a 14-foot high mixed-media sculpture that symbolizes growth and change.

"Art in public places" refers to publicly accessible artwork that is integrated into the design of public or private property. Public art may draw from a city's unique identity and character through integrating arts, culture and entertainment into the community's everyday life. Also, public art can commemorate and interpret historical contributions, reflect unique identity and help to define a city's gateways, focal points and public or private uses.

Art installations and programs can support economic development and redevelopment goals by enhancing community livability and identity and by contributing to a stimulating cultural environment for both residents and visitors. St. Helena is dedicated to strengthening the arts and cultural sector, beautifying the environment, and ensuring that the arts flourish and reinforce St. Helena's unique character and identity through ongoing financial support for local visual, performing, cultural, literary and culinary arts.

13 arts, culture and entertainment

Creating an Art in Public Places Program can help advance the City's goal of establishing the arts as integral to St. Helena's identity.

13.3 Key Findings

There are several challenges and opportunities facing St. Helena related to arts, culture and entertainment. The following key findings are based on a comprehensive existing conditions analysis, stakeholder interviews and community input.

- The nonprofit arts and culture industry contributes significantly to the national economy by generating approximately $166.2 billion in total economic activity nationwide each year. In addition, the arts support 5.7 million jobs, generate $29.6 billion in tax revenue and contribute $104.2 billion to household incomes. By strengthening its arts sector, St. Helena can establish the arts as a key driver in the local economy.
- Visual arts and music represent the two largest segments of the arts and culture sector in Napa County, complemented by theater, dance, film, media, literary and cultural programming, creating a varied and diverse arts landscape across the county. In addition, St. Helena hosts world-renowned culinary arts resources that contribute greatly to the local economy and cultural community.
- St. Helena has the greatest number of artists and arts organizations per capita in the Napa Valley. Although the City's population is only five percent of the Valley's total population, St. Helena's artists and arts organizations account for 18 percent of the Valley's total.

In a 2007 Arts Council Napa Valley survey, 78 percent of Napa County's artists reported that they worked in their homes and supplemented their art income with alternate employment. Twelve percent of Napa County artists described themselves as full-time, professional artists. Many reported that they chose to live in Napa County for its charm and beauty, but find the high costs of living, studio, and rehearsal spaces challenging and limiting to their artistic pursuits. The City can help strengthen its arts community with actions to ensure there are places available for artists to live and create, including identifying locations for affordable studio, rehearsal and performance spaces, and reducing regulatory barriers that limit artists' abilities to live, create, exhibit, and sell their works from their homes.[3]

- St. Helena's arts and culture sector is strongly affected by the strength and vitality of the arts sector in the Napa region. Artists and arts organizations across the Napa Valley compete for attendance, local support and resources.
- In the 2007 Arts Council Napa Valley survey, arts community representatives highlighted a need for increased marketing and communications focused on the area's arts offerings. Representatives also cited the need for artists to have places to gather and communicate about upcoming events and partnership opportunities. By encouraging arts gatherings, events and public art installations, the City can assist local artists in marketing their work and collaborating to share information about upcoming events, facilitating interaction between artists and the local business community.
- Members of the arts community expressed a need for additional community arts, performance and exhibition spaces to meet the needs of emerging artists. They cited a need for venues in which to screen films, videos, and multimedia exhibits, and performing arts venues that can accommodate smaller dance or theatre companies. As part of a countywide effort to strengthen the local arts and cultural communities, St. Helena can undertake an arts facility inventory to identify possible locations for a cultural arts center designed to meet current unmet needs.

3 *Warshawski, Morrie. Executive Summary: Town Hall Meetings. Prepared on behalf of the Arts Council Napa Valley. 2007*

13 arts, culture and entertainment

City policies that support an array of media can broaden the overall impact of the arts on St. Helena's local economic development efforts.

- Actions available to the City to increase its support for the arts, culture and entertainment sector include creating a public funding mechanism to support public art and art events, reducing regulatory barriers such as licenses and permits that can be prohibitively expensive for emerging artists and refining zoning regulations that pertain to live/work studio spaces and artists' ability to sell work from their homes and studios.
- Currently, the City lacks a designated body to organize, oversee, and guide arts and cultural programming in St. Helena. Establishing a St. Helena Arts Committee to direct funding, work with the City to streamline permitting and approvals, , and liaise with the Napa County Commission for Arts and Culture and other regional efforts can strengthen collaboration and coordination within the local arts and culture sector. Such a committee would also ensure that arts and culture become a critical part of St. Helena's high quality of life and unique sense of place. In addition, including representatives of a wide range of arts media and cultural groups, as well as age, on the Arts Committee can ensure that St. Helena pursues an equitable and balanced arts program.groups on the Arts Committee can ensure that St. Helena pursues an equitable and balanced arts program.

13.4 Goals

The goals of the Arts, Culture and Entertainment Element are:

Celebrate Arts, Culture, and Entertainment.

St. Helena is committed to celebrating the contribution of its visual, performing, culinary and entertainment artists who help define the City's unique identity and the high quality of life.

Strengthen and Expand Arts, Culture, and Entertainment.

St. Helena is dedicated to strengthening its arts, culture, and entertainment sector, improving the economic health of the City, beautifying the environment, and incorporating the arts into daily life through ongoing financial support for local visual, performing, cultural, literary, and culinary arts.

Honor Culture and Heritage.

St. Helena seeks to venerate the past and present contributions of its residents and their diverse cultural and historic contributions to the City.

This stained glass greenhouse incorporates art into daily life in the Napa Valley.

Local concerts in the park provide opportunites for the community to gather, dance, and enjoy live music.

13.5 Policies and Implementing Actions

A range of policies and implementing actions are outlined below and organized into the following topic areas:

1. Community Enhancement and Economic Development;
2. Inclusive Programs;
3. Awareness, Education and Outreach; and
4. Civic Leadership

The following policies and actions mandate, encourage, or allow certain initiatives to be pursued throughout the duration of the General Plan. Together, they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

Policies

AC1.1 Ensure widespread opportunities for arts exposure by integrating them physically and socially into community life in order to establish the arts as an integral part of St. Helena's identity.

AC1.2 Promote arts and culture as key components of St. Helena's historic, current and future identity.

AC1.3 Support collaboration between local business organizations to incorporate public art into the City's economic development strategies.

AC1.4 Increase the contribution of arts, culture, and entertainment to cultural tourism and local economic development efforts through partnerships with regional arts organizations.

Parades and festivals help to integrate celebration of art, history and culture into community life.

Implementing Actions

AC1.A Develop a program to expand major festivals and events that celebrate arts, culture, and history while contributing revenue to the City. Potential events include:

- Endeavors that feature the youth in arts, such as communitywide student recognition concerts and a youth arts festival;
- Theater-in-the-park performances;
- Dance;
- Outdoor film screenings;
- Art shows and art walks;
- Poetry readings;
- Holiday and cultural parades;
- Culinary and harvest celebrations;
- Open studios;
- Music festivals; and
- Art-based competitions.

AC1.B Develop and implement a marketing/public relations campaign that highlights artists and events in St. Helena. Possible City actions can include posting arts announcements on the City's website, installing a kiosk downtown that distributes local arts information to the community, and hosting events where artists and arts organizations can gather to share information with local business owners. Pursue opportunities to increase revenue due to cultural tourism. Partner with regional arts organizations to maximize the effectiveness of marketing and cultural tourism efforts.

AC1.C Adopt an Art in Public Places program and ordinance to ensure that public art projects occur efficiently and in a way that meets citywide objectives.

Local museums and sculpture gardens serve as an attraction for cultural tourists.

AC1.D Identify existing locations that can be used as studio, rehearsal, exhibition, and performance spaces. Support efforts to make these spaces affordable to local artists.

AC1.E Provide public performance spaces for musicians, dancers and other performing artists.

AC1.F Identify locations, where public or private, sponsored arts, cultural, and entertainment events can be held and activities can occur. Locations may include the St. Helena library, new development on Adams Street, and the Cameo Theatre.

AC1.G Provide zoning and developer incentives to encourage and reward the creation and retention of affordable spaces for artists to create and present work.

AC1.H Encourage development of public-private partnerships with culinary institutions to support local emerging chefs, bakers, specialty food makers, and other local emerging culinary artists.

AC1.I In cooperation with the St. Helena Historical Society, develop a public education and awareness program to promote the City's historical and cultural resources. Program components can involve self-guided walking tours, plaque identification programs, home and garden tours, speakers' series and other public events.

(For additional policies and implementing actions regarding historic and cultural education and outreach, see the Historic Resources Element.)

topic area
2 INCLUSIVE PROGRAMS

Policies

AC2.1 Encourage emerging art forms, artists, and diverse cultural traditions.

AC2.2 Promote affordable, relevant, and accessible cultural offerings for all St. Helena residents.

Implementing Actions

AC2.A Identify artists and outlets for diverse cultural offerings.

AC2.B Identify and direct funding to support artists who represent the diversity of the St. Helena community.

AC2.C Encourage the participation of all arts organizations in citywide marketing and promotional opportunities.

AC2.D Encourage performing arts organizations to make empty seats available at low or no-cost to St. Helena residents who cannot otherwise afford to attend performances.

St. Helena supports diverse cultural traditions and emerging artists and forms of art.

topic area
2 INCLUSIVE PROGRAMS

Visual arts are an important part of St. Helena's identity.

AC2.E Conduct outreach about local arts opportunities and events to non-English speaking groups, particularly the Spanish-speaking community.

AC2.F Consider a series of City-sponsored events that enable artists and cultural organizations to gather and exhibit works.

AC2.G Develop an incentives program to grow the capacity of local artists and arts organizations. Encourage affordable, strategically located studio workspaces, performance, and exhibit spaces in underutilized buildings; encourage professional exhibitions or demonstrations and sales; and provide tools and resources to secure support for their work.

AC2.H Make City property available for the public display of art.

topic area
3 AWARENESS, EDUCATION AND OUTREACH

Policies

AC3.1 Support community-based arts organizations that make significant contributions to the St. Helena community.

AC3.2 Nurture creativity and artistic talent through a rich offering of well balanced and equitably-distributed arts and cultural education programs and services.

AC3.3 Increase local awareness of the arts sector.

AC3.4 Support expanded arts programming in schools and strengthen youth arts opportunities provided by arts organizations.

Community-based arts make important contributions to the St. Helena economy and quality of life.

Implementing Actions

Encourage the creation of a St. Helena Arts Committee to embrace these concepts:

AC3.A Consider attracting world-class artists and research what is being done with successful art-based communities in other destinations in order to enhance the community and revenue.

AC3.B Engage local and regional media in generating interest and excitement about the importance of arts to the St. Helena community.

topic area
3 AWARENESS, EDUCATION AND OUTREACH

AC3.C Conduct and publish results of an arts in education survey of programming available through local schools and organizations. Using this research as a foundation, create an Arts Education Master Plan for St. Helena.

AC3.D Actively pursue joint-use agreements with the Napa County Office of Education, St. Helena Unified School District, faith organizations, public agencies, private entities, or nonprofit organizations that own or operate facilities within the city to maximize the use of facilities in the community for arts and entertainment purposes.

AC3.E Develop an effective outreach program for all City programs and services in order to ensure the successful delivery of information about arts program availability to the general public. Ensure that all materials are made available in Spanish and other languages spoken in the community.

AC3.F Encourage "artists-in-residence" programs in schools and arts organizations in order to expand opportunities for youth to experience the arts.

AC3.G Partner with the Arts Council Napa Valley and other arts organizations to support a centralized information bank and resources for schools, artists, and arts organizations for arts programming.

AC3.H Provide funding and support for artists and teachers to develop best practices.

topic area
4 CIVIC LEADERSHIP

Policies

AC4.1 Support improved coordination and communication between arts organizations.

AC4.2 Support the arts in partnership with the City and business communities.

AC4.3 Build a coalition of informed arts advocates who can generate support for key arts issues within the city.

AC4.4 Create public funding sources for the arts.

AC4.5 Partner with Napa County and regional arts endeavors to ensure that the City's support for arts, culture, and entertainment integrate others in the area.

AC4.6 Create locations for public displays of art and facilitate their use on public property.

AC4.7 Create a permitting process that facilitates art installation on public property.

Implementing Actions

AC4.A Encourage the creation of a St. Helena Arts Committee to oversee art installations, proposals, funding strategies, education, and public relations efforts. The Arts Committee can facilitate connections between artists and the business community and oversee City-sponsored efforts.

AC4.B Consider how to create a sustainable public funding system, such as a percentage allocation of development fees and/or transient occupancy taxes (TOT), to support the City's efforts to promote arts, culture, and entertainment. Conduct a survey to identify additional models of public support for artists and arts organizations and consider a plan to implement appropriate policies.

(Also see the Economic Sustainability Element, Topic Area 1)

AC4.C Consider a local arts funding strategy to increase private funding and resources that support artists and local art institutions and organizations in the city. Identify key donors to participate in public-private partnerships to support arts and culture citywide.

AC4.D Encourage incentives and rewards for partnerships and cooperation through funding policies and resource development.

AC4.E Provide opportunities for arts leaders to build partnerships and develop joint projects, including revenue-generating events.

AC4.F Explore opportunities to build partnerships with other municipalities and the County to support regional arts and culture promotion efforts.

AC4.G Create a simple, user-friendly permitting process for artists to display their works.

Partnerships between artists and the business community are critical to developing sustained support for arts, culture and entertainment in St. Helena.

ST. HELENA
CALIFORNIA

St. Helena General Plan Update Punchlist

Global Edits

- Page numbers in PDF (not on the doc itself, but the list of pages in Acrobat) show up as Roman numerals for the entire document

Chapter 1: Introduction

- No change

Chapter 2: Land Use

- P. 2-24 second last bullet. Edit: "Specifies standards for... and elevation,"
- LU5.I Establish a Farmland Mitigation Program for future development that requires the permanent protection of farmland at a 1:1 ratio of the amount of farmland converted. The program should include provisions for the acquisition of agricultural conservation easements and payment of in-lieu fees as potential methods of farmland mitigation, where eligible agricultural mitigation lands must be located within the State of California and be of comparable or better soil quality than the land being converted, and in-lieu fees are to be used for the acquisition of a conservation easement, including costs associated with the transaction and long-term maintenance.
- LU6.A Update the zoning ordinance and map to be compatible with the General Plan Land Use maps , designations and public facilities and services element.

Chapter 3: Economic Sustainability

- No change

Chapter 4: Public Facilities and Services

- P.4-11 Regional Water Quality Control Board (RWQCB)
- P. 4-19 Portions of the Wastewater Treatment Plant are located within the 100-year floodplain, which can cause stormwater flows to ~~can~~ infiltrate the City's wastewater collection system during the rainy season. Reducing inflow and infiltration into the wastewater collection and treatment system can reduce the frequency of overloads and increase the effectiveness of the City's facilities.
- PF2.D Reduce sewer system inflow and infiltration through repair and replacement of sewer pipes and protection from ~~removal of~~ inflow sources.

Chapter 5: Circulation

- P. 5-4 add italicized text in the margin: *Regional planning initiatives such as the Napa Countywide Pedestrian Plan and the Napa County Travel Behavior Study provide context for the circulation and mobility framework in St. Helena.*
- P. 5-7 Edit: A pedestrian network that accommodates the City's most vulnerable users, such as seniors, children and individuals of limited mobility, will ensure that St. Helena's streets are safe and accessible for all. ~~As of January 2010, the City is creating a transition plan to study Americans with Disabilities Act (ADA) accessibility throughout the City.~~

Relevant planning initiatives include the 2010 ADA Transition Plan and the 2016 Napa Countywide Pedestrian Plan.

- Last bullet, page 5-9: The primary transit option in the Napa Valley is the ~~VINE~~ Vine bus service. Development and land use patterns in the Napa Valley have resulted in low …
- P.5-9 Replace Old Vine Go photo-with something from here: . Shared/Active Jobs/556 St Helena General Plan and EIR/Photos/From NVTA
- P.5-10 First bullet - revise sentence regarding Vine Trail -"will" connect St. Helena, not "connects"
- P.5-11 Update NCPTA text as follows:
  The Napa Valley Transportation Agency (NVTA) ~~Napa County Transportation and Planning Agency (NCTPA)~~ is a key partner and resource in regional transportation planning, programming and funding administration for Napa County. The NVTA ~~NCTPA~~ is a Joint Powers Agency (JPA) comprised of the City of Calistoga, City of St. Helena, Town of Yountville, City of Napa, City of American Canyon, and Napa County. Originally known as the Napa County Transportation and Planning Agency (NCTPA), the agency's Board of Directors approved a resolution to re-brand as NVTA in February 2016 to clarify the agency's role in the community. The NVTA ~~NCTPA's~~ Board of Directors includes the mayors and one councilmember of each of the jurisdictions in the County~~;~~, ~~and~~ the Chairman of the Board and one Supervisor of Napa County, and one non-voting representative from the Paratransit Coordinating Council. The NVTA ~~NCTPA~~ operates the countywide transportation program, including countywide transit service, paratransit, community shuttles, and ~~the St. Helena~~ Vine Transit.

  In 2015 ~~2009~~, the NVTA ~~NCTPA~~ issued The Napa Countywide Transportation Plan - Vision 2040: Moving Napa Forward ~~Napa's Transportation Future~~, a report that identifies the transportation issues facing Napa County and outlines a comprehensive vision for the County's transportation system in 2040 ~~2035~~. This report includes a series of goals designed to attain this vision and addresses how strategic transportation planning may enable the County to resolve key issues that might arise in the future due to projected population and employment growth. The Circulation Element includes a number of policies and implementation actions that support NVTA ~~NCTPA~~ recommendations, such as transportation demand management.
- P.5-11 Replace cover image with cover of Vision 2040: Moving Napa Forward: http://www.nvta.ca.gov/countywide-plan-vision-2040
- P. 5-22 as a new 3rd paragraph under Pedestrian Circulation, add:
  An inventory of existing sidewalks, marked crosswalks, curb ramps and trails was completed for St. Helena as part of the 2016 Napa Countywide Pedestrian Plan (See Figure 5-4). The Countywide Plan, which includes a pedestrian plan for St. Helena, identified pedestrian improvements for key areas of the city in order to improve pedestrian circulation in the vicinity of schools, businesses, and transit facilities, as well as to bolster connections to multi-use pathways.
- P.5-23
  - Replace text with:

    Class I Bikeway (Bike Path) paths provide a separate right-of-way and are designated forthe exclusive use of people riding bicycles and walking with minimal cross-flow of

vehicle traffic. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
• Class II Bike Lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
• Class III Bike Routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.
• Class IV Bikeway (Separated Bikeway) Separated Bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Guidelines for Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

- P. 5-25
  St. Helena's bicycle network ~~includes bikeways in all three bicycle path~~ aims to maximize connectivity throughout the city (see Figure 5.5). The St. Helena Bicycle Plan, prepared in collaboration with the Napa Valley Transportation Authority ~~County & Planning Agency~~, outlines existing and planned bicycle routes intended to provide safe and convenient bicycle access to parks, open spaces, commercial areas, residential neighborhoods, and community facilities.
- P.5-30
  ~~b)~~ Examples of measures of "significantly lower levels of service" (renumber subsequent items)
    - i – should state, "…in accordance with NVTA's Countywide Transportation Plan"
- Page 5-30, Circulation, item c) Provide a complete bicycle and pedestrian network between residential areas, downtown, recreational open space areas, and other major activity centers identified by the City.
- CR1.7 Explore the use of the rail corridor to reduce traffic, including working with the ~~new~~ owners of the Wine Train to consider the possibility of developing hospitality and other tourist-oriented uses that are primarily accessed by passengers riding on the Wine Train Corridor.
- CR1.8 Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies:
    - Complete the City's bicycle and pedestrian network, which will increase transportation choices in the city and reduce the demand for vehicle travel;

    - Implement "smart growth" and sustainable planning principles as defined in the Land Use Element
- CR2.L: Enhance the pedestrian environment within the commercial area, and support the development of walking paths, multi-use trails, and bicycle trails throughout St. Helena with the goal of connecting to a countywide system.
- CR2.D Identify and pursue funding opportunities for bicycle projects on the local, state and federal levels. Update the existing and proposed bicycle system every five years, as required by Caltrans to qualify for funding.
- CR3.1 Provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, walk, and take transit to work and reduce peak period trip generation. Coordinate as appropriate with NVTA to implement strategies including the following:
- CR3.4 Work with the wine and hospitality industries to manage congestion and create and promote car-free tourism services, coordinating as appropriate with NVTA on TDM strategies.
- Figure 5-4 Confirm and update Vine Trail route as needed
- Review information in "Concepts, Trends, and Ideas: Regional Coordination" on page 5-11 to see if there is newer data and to reflect the name change to "Napa Valley Transportation Authority"

Chapter 6: Historic Resources

- Figure 6.2 on page 6-9 is has the bottom cut off
- Fix Historic Resources list appendix → appears to have extra page at the end

Chapter 7: Community Design

- P. 7-3 providing space for recreation and passive activities, natural areas, plazas, flood conveyance, and agriculture.

Chapter 8: Open Space and Conservation

- OS1.B, page 3.4-26, and 3.9-27 (GP page 8-23) Restrict development on open space-designated parcels along Sulphur Creek west of the Crane Avenue Bridge. All development must be outside the stream corridor and structures must be set back from the creek's edge, consistent with California Department of Fish and Game standards. This does not preclude potential walking or multi-use trail development.
- P. 8-17 Add new paragraph at end: The City's Comprehensive Flood Control and River Restoration Project, completed in 2011, is an example of the City's efforts to provide integrated watershed management practices. This multi-benefit project provided 100-year flood protection for an area of St. Helena that has been subject to periodic historical flooding, provided river restoration, and open space areas for the City. This project is discussed in the public health, safety and noise element.

Chapter 9: Public Health, Safety, and Noise

- P. 9-4 First words of last paragraph "In 2011,"
- P. 9-7 after second full paragraph, add: St. Helena has developed an Operations and Maintenance Manual for the Comprehensive Flood Control and River Restoration Project, which describes the extent of the project and outlines operation and maintenance

activities that the City and Napa County Flood Control District will work together to manage. The manual describes project features, routine monitoring and maintenance activities, pump station operation, emergency operations, surveillance, personnel training, utility coordination and design.

- P. 9-23: Completed in June 2011, the City of St. Helena Comprehensive Flood Control and Environmental Restoration Project provides a minimum 100-year level of flood protection within the project and surrounding area of St. Helena. ~~200-year flood protection along the Napa River between Pope Street and the northern alignment of Adams Street~~. Design of the project was done on the basis of a Napa River Flood Model Study from Zinfandel Lane to Lodi Lane completed jointly by the City of St. Helena and the Napa County Flood Control and Water Conservation District with Measure A funding. The individual elements of the project include floodplain terracing, shoreline restoration, a new levee, floodwall and bank stabilization, and stormwater management features including a detention basin and pumping facility. The project protects hundreds of homes and is projected to save millions of dollars in flood insurance claims.
- P. 9-25: Moreover, restricting new development within the floodplain and prohibiting development in the FEMA-designated floodway can minimize additional flood hazards and the need for further mitigation measures.
- P. 9-13 - Replace 2nd full paragraph under NOISE (which is cut off) with: Land uses have different levels of compatibility relative to noise, and the State of California mandates that general plans include noise level compatibility standards for the development of land as a function of a range of noise exposure values (see Table 9.2). Table 9-3 identifies interior noise standards.
- Page 9-14, Table 9-2
    - Frequency, Hz: The number of complete pressure fluctuations per second above and below atmospheric pressure expressed in Hertz (Hz). Normal human hearing is between 20 Hz and 20,000 Hz.

- P. 9-16: "Wine train has than 2 trips/day to St. Helena (closer to 4) – change sentence to "The Wine Train travels ~~has an average of two trips~~ to St. Helena ~~per~~ each day and emits a loud horn at crossings, along with the low frequency rumble of the diesel engines."
- P. 9-27: "Mitigating traffic noise can be difficult, particularly the noise generated along State Route 29 throughout the day and night. However, the City can adopt noise standards to address more infrequent noise sources, such as those related to off-hours delivery~~,~~ and commercial loading and unloading~~, and leaf blowing devices.~~"
- PS1.I. Update the reference to the BAAQMD's 2000 CAP to the 2017 CAP.
- PS2.H. Amend the City's noise ordinance to regulate intrusive noise sources, such as the use of machinery and equipment, ~~leaf blowers, and other~~ landscaping and property maintenance devices, animals, ~~vehicles, and motorcycles,~~ and idling buses or trucks in or near uses sensitive to noise.
- PS5.1 Minimize the risk to people, property and the environment caused by flooding hazards. Site new development to minimize potential damage from a 100-year flood. Continue to require that any new development is constructed FEMA standards. Prohibit the siting of uses within Flood Hazard Areas inconsistent with FEMA standards that could result in health and safety hazards, including those due to the release of chemicals or other substances as a result of inundation or erosion. Ensure that any new flood

protection projects comply with federal and State ~~Department of Water Resources (DWR)~~ standards.

- PS5.A Coordinate with the Napa County Flood Control District to ensure that stream channels are routinely cleared of vegetation and debris which could impede stormwater flows, while protecting riparian habitat.
- PS5.E Prohibit the introduction of urban development in FEMA-designated Floodways.
- PS6.1 Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters and that applicable operations and maintenance manuals are followed.

Chapter 10: Climate Change

- CC1.B If feasible maintain and enhance existing express bus, local bus, and para-transit services. Provide shuttle service between the three upvalley towns. Support the establishment of a northbound express bus during peak commute hours. Ensure that these services provide opportunities to connect with existing and proposed countywide service improvements, ~~such as a centralized~~ including the transit center in Downtown Napa.
- CC3.A Establish programs and create incentives to achieve a 75 to 90 percent citywide construction and demolition debris waste diversion level in support of Statewide goals.
- CC3.B Establish programs and create incentives to achieve a 75 percent organic (food and green) waste diversion level in support of Statewide goals.
- CC4.4 Support efforts to expand and improve the City's managed urban forest ~~program~~ in order to reduce greenhouse gas emissions and improve overall air quality.

Chapter 12: Parks and Recreation

- Page 12-4, For St. Helena, a comprehensive parks and recreation system includes parks of various sizes, community gardens, community orchards, community and recreational facilities, accessible open spaces, a variety of natural features, and connectors such as paths, trails, and green streets.
- Page 12-8, Evidence indicates that people tend to exercise more when they have to access to parks and open spaces, thereby increasing health and reducing the risk of many physical, life-threatening conditions.

City of St. Helena
General Plan Update 2040

FINAL ENVIRONMENTAL IMPACT REPORT SCH# 2010042001

March 19, 2019

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1 Introduction

This Final Environmental Impact Report (EIR) has been prepared by the City of St. Helena in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 *et seq.*). The EIR analyzes potential environmental impacts of the adoption and implementation of the proposed St. Helena General Plan Update 2040, referred to as the "Proposed Plan." This Final EIR provides responses to comments on the Draft EIR as well as corrections and clarifications to the Draft EIR. The City of St. Helena is the lead agency responsible for ensuring that the proposed General Plan complies with CEQA. "Lead agency" is defined by Section 21067 of CEQA as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment."

Purpose

This document, combined with the Draft EIR, published October 23, 2018, constitutes the Final EIR on the Proposed Plan as described in Chapter 2: Project Description of the Draft EIR. The primary purpose of the Final EIR is to revise and refine the environmental analysis in the Draft EIR in response to comments received during the public review period. The public review period for the Draft EIR (State Clearinghouse No. 2010042001) lasted for 71 days, from Tuesday, October 23, 2018 to Friday, January 2, 2019.

This Final EIR amends and incorporates by reference the Draft EIR. This document includes comments and responses to comments on the Draft EIR, and corrections and clarifications to the Draft EIR. The EIR is intended to disclose to City of St. Helena decision makers, responsible agencies, organizations, and the general public the potential impacts of implementing the Proposed Project using a program level of analysis. The Draft EIR and Public Review Draft St. Helena General Plan 2040 are available for review at the City of St. Helena website (http://www.ci.st-helena.ca.us/).

CEQA Process

Before the City may approve the various discretionary actions needed to implement the Proposed Plan, it must independently review and consider the information contained in the Final EIR, certifying that the Final EIR adequately discloses the environmental effects of the Proposed Plan, that the Final EIR has been completed in conformance with CEQA, and that the decision-making body of the Lead Agency independently reviewed and considered the information contained in the Final EIR. Certification of the Final EIR would indicate the City's determination that the Final

EIR adequately evaluates the environmental impacts that could be associated with the Proposed Plan.

For impacts identified in the EIR that cannot be reduced to a level that is less than significant, the City must make findings and prepare a Statement of Overriding Considerations for approval of the Proposed Project if specific social, economic, or other factors justify the Proposed Plan's unavoidable adverse environmental effects. If the City decides to approve the Proposed Plan for which the Final EIR has been prepared, it will issue a Notice of Determination.

The City of St. Helena has prepared this document pursuant to CEQA Guidelines Section 15132, which specifies that the Final EIR shall consist of:

- The Draft EIR or a revision of the Draft;
- A list of persons, organizations, and public agencies commenting on the Draft EIR;
- Comments and recommendations received on the Draft EIR;
- The response of the Lead Agency to significant environmental points raised in the review process; and
- Any other information added by the Lead Agency.

This Final EIR incorporates comments from public agencies and the general public. It also contains the Lead Agency's responses to those comments. Copies of the Final EIR have been provided to agencies and other parties that commented on the Draft EIR or have requested the Final EIR. The Final EIR can also be accessed through the City of St. Helena website.

New Information in the Final EIR

If *significant new information* is added to an EIR after notice of public review has been given, but before final certification of the EIR, the Lead Agency must issue a new notice and recirculate the EIR for further comments and consultation. Significant new information is that which discloses that:

- A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented;
- A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance;
- A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it; or
- The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

Corrections or clarifications to the Draft EIR identified in Chapter 3 of this document do not constitute *significant new information* pursuant to Section 15088.5 of the CEQA Guidelines; this

new information merely clarifies and makes insignificant changes to an adequate EIR. Information presented in the Draft EIR and this document support this determination.

Organization

This document contains the following components:

- **Chapter 1**
- **Chapter 2** lists all of the agencies, organizations and individuals that submitted written comments on the Draft EIR; reproduces all comments; and provides a unique number for each comment in the page margin.
- **Chapter 3** provides numbered responses to comments on the Draft EIR keyed to the comment letters included in Chapter 2, as well as revisions to the Draft EIR where necessary to clarify or amplify in the order that responses appear. Where such revisions are warranted in response to comments on the Draft EIR, deletions are shown in ~~strikethrough~~ and additions are shown <u>underlined</u> in the matrix of comments and responses. Map revisions required in response to comments are noted in the matrix and the revised maps are included at the end of this chapter.
- **Appendix A** provides the Notice of Preparation, Notice of Completion, and Notice of Availability for the 2018 Draft EIR to the St. Helena General Plan Update 2040 published for public review and comment, as well as the Notice of Availability for the 2016 Draft.

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2 Comments on the Draft EIR

This chapter contains copies of the comment letters received on the Draft EIR. A total of 18 comment letters and emails were received during the 71-day comment period. In addition, the City of St. Helena Planning Commission held a regular Planning Commission meeting to receive comments on the Draft EIR for the General Plan Update during the comment period on December 4, 2018. One member of the public and four St. Helena Planning Commissioners provided comments at the December 4, 2018 Planning Commission meeting. This chapter also includes a letter from the State Clearinghouse acknowledging the City's compliance with State Clearinghouse review requirements pursuant to CEQA and stating which comments were submitted by State agencies. Comments received are listed in Table 2-1.

Each letter is identified by a designator (e.g. "Letter A1"). Letters sent by the same commenter are grouped together (e.g. "Letter A1-B" designates a letter sent at a later date). Specific comments within each letter are identified by a designator in the page margin that reflects the sequence of the specific comment within the correspondence (e.g. "A1-1" for the first comment in Letter A1). Comments are organized by public agency comments and responses (Section A) and individual comments and responses (Section B). Comment B-10 includes all comments made by individual members of the public and Planning Commissioners at the December 4, 2018 Planning Commission meeting, which are responded to separately. Within each category, comments are listed in chronological order according to the date on the letter.

Table 2-1: Comments Received on the Draft EIR

Letter #	*Date*	*Commenter*	*Agency/Organization*
Section A: Agencies (Federal, State, Regional, Local)			
A1	November 7, 2018	Monique Wilber, Conservation Program Support Supervisor	California Natural Resources Agency, Department of Conservation, Division of Land Resources Protection
A2-A	December 13, 2018	Brendon Freeman, Executive Officer	Local Agency Formation Commission of Napa County
A2-B	January 2, 2019	Brendon Freeman, Executive Officer	Local Agency Formation Commission of Napa County
A3-A	December 19, 2018	David Morrison, Director of Planning Building and Environmental Services	Napa County Planning, Building, and Environmental Services
A3-B	January 2, 2019	David Morrison, Director of Planning Building and Environmental Services	Napa County Planning, Building, and Environmental Services

Table 2-1: Comments Received on the Draft EIR

Letter #	*Date*	*Commenter*	*Agency/Organization*
A4	December 26, 2018	Napa Valley Transportation Authority	Napa Valley Transportation Authority
Section B: Individuals			
B1	December 19, 2018	Jerry Hyde	Individual
B2	December 20, 2018	Glenn Cook	Individual
B3	December 24, 2018	Peter Mennen	Individual
B4-A	December 27, 2018	Lois Ann Battuello	Individual
B4-B	December 28, 2018	Lois Ann Battuello	Individual
B5	December 29, 2018	Tim Klein	Individual
B6	December 30, 2018	John Ponte	Individual
B7-A	December 30, 2018	Mark Smithers	Individual
B7-B	December 30, 2018	Mark Smithers	Individual
B7-C	January 2, 2019	Mark and Pam Smithers	Individuals
B8	January 2, 2019	Vickie Bradshaw	Individual
B9	January 3, 2019	James and Pat Reynolds	Individuals
B10	December 4, 2018	Comments received at Planning Commission meeting	Individuals

Comment Letter A1

State of California • Natural Resources Agency
Department of Conservation
Division of Land Resource Protection
801 K Street • MS 14-15
Sacramento, CA 95814
(916) 324-0850 • FAX (916) 327-3430

Edmund G. Brown Jr., *Governor*
Clayton Haas, *Acting Director*

November 7, 2018

A1-1

VIA EMAIL: NHOUSH@CITYOFSTHELENA.ORG
Mr. Noah Housh, Director
City of St. Helena
Planning and Community Department
1480 Main Street
St. Helena, CA 94574

Dear Mr. Housh:

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE ST. HELENA GENERAL PLAN UPDATE 2040, SCH# 2010042001

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft Environmental Impact Report for the St. Helena General Plan Update (Project). The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The proposed project consists of an update of the City's General Plan. The General Plan is a long-term policy document that establishes direction to guide future land use decisions, a framework to ensure the character and quality of development desired by the community, and the processes by which development and land use changes will take place. The General Plan is used by City staff to review development proposals to ensure that subsequent projects align with the community's vision. The Planning Commission and City Council use the General Plan to guide decision-making that would impact the city's physical environment.

Department Comments

A1-2

Although direct conversion of agricultural land is often an unavoidable impact under CEQA analysis, mitigation measures must be considered. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation under CEQA. Rather, the criterion is feasible mitigation that lessens a project's impacts.

All mitigation measures that are potentially feasible should be considered. A measure brought to the attention of the Lead Agency should not be left out unless it is infeasible based on its elements. The Department suggests that the City consider the adoption of an agricultural land mitigation program that will effectively mitigate the conversion of agricultural land.

Agricultural conservation easements are an available mitigation tool that the City should consider. The Department highlights easements as a mitigation tool because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because they follow an established rationale similar to that of wildlife habitat mitigation. A1-2

Programs that establish agricultural conservation easements and in-lieu fees for mitigation banking are most effective at conserving comparable quality agricultural land when the easement requirements or fees are determined concurrent with project approval. Should significant time elapse between initial approval and the applicant's receipt of a building or grading permit, conflict may arise over the agricultural quality or value of the land being converted.

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Another source is the Division's California Farmland Conservancy Program (CFCP), which has participated in bringing about conservation easements throughout the State of California involving many California land trusts. Any other feasible mitigation measures should also be considered.

Conclusion

Thank you for giving us the opportunity to comment on the Draft Environmental Impact Report for the St. Helena General Plan Update. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov. A1-3

Sincerely,

Monique Wilber
Conservation Program Support Supervisor

Comment Letter A2-A

From: Freeman, Brendon [mailto:bfreeman@napa.lafco.ca.gov]
Sent: Thursday, December 13, 2018 2:23 PM
To: Noah Housh
Cc: Mark Prestwich
Subject: St Helena Gen Plan DEIR

Good afternoon Noah,

Just want to give you a heads up that LAFCO will submit a comment letter on the City's DEIR by the 1/2/19 deadline. I've authorized Ascent Environmental to prepare the letter and they will call you sometime next week to discuss our respective interests. A2-A-1

LAFCO's core interest is ensuring we can rely on the City's EIR to satisfy our CEQA requirements for any potential sphere expansions involving the three study areas. The letter will also mention that the Cortese-Knox-Hertzberg Act includes a unique definition of "prime agricultural land" (Gov Code Section 56064) that differs from FMMP's "prime farmland", so we will request the DEIR at minimum identify prime ag lands within the study areas. A2-A-2 Finally, we will also request LAFCO be identified as a responsible agency where appropriate, assuming sphere expansions will indeed be pursued. A2-A-3

Please note I'll be out of the office the next two weeks for vacation, but I'll be checking emails. Feel free to email me with any questions, comments, concerns, or otherwise and I'll do my best to reply ASAP. You can also flesh out any issues with Ascent, as I'm heavily deferring to their professional expertise. A2-A-4

Best wishes for a happy holiday season,

Brendon Freeman, Executive Officer
Local Agency Formation Commission of Napa County
1030 Seminary Street, Suite B
Napa, California 94559
Office: (707) 259-8645
Mobile: (707) 363-1783
www.napa.lafco.ca.gov

Comment Letter A2-B

Local Agency Formation Commission of Napa County
Subdivision of the State of California

1030 Seminary Street, Suite B
Napa, California 94559
Phone: (707) 259-8645
Fax: (707) 251-1053
www.napa.lafco.ca.gov

We Manage Local Government Boundaries, Evaluate Municipal Services, and Protect Agriculture

January 2, 2019

A2-B-1

DELIVERED BY E-MAIL

Mr. Noah Housh
City of St. Helena
1480 Main Street
St. Helena, California 94574
NHoush@cityofsthelena.org

SUBJECT: Comments on the City of St. Helena General Plan Update and Draft Environmental Impact Report

Mr. Housh:

On October 23, 2018, the City of St. Helena released the St. Helena General Plan Update 2040 and accompanying Draft Environmental Impact Report (EIR) for public review and comment. Ascent Environmental reviewed both documents for overall adequacy of analysis and sufficiency of evidence, as well as adherence to CEQA requirements for preparation of an EIR. The following comments are provided for consideration.

Napa County Local Agency Formation Commission (Napa LAFCO or Commission) appreciates the opportunity to comment on the St. Helena General Plan Update 2040 (project) and accompanying Draft Environmental Impact Report (EIR). Napa LAFCO will use both final documents in fulfilling its regulatory and planning responsibilities under the authority of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. These duties include, but are not limited to, regulating governmental boundary changes through annexations or detachments, approving or disapproving city incorporations, and forming, consolidating, or dissolving special districts. Under the California Environmental Quality Act (CEQA), LAFCO is a Responsible Agency for this project and it is in this role that Napa LAFCO is commenting on this EIR.

Comments on Noticing Procedures

The Notice of Preparation (NOP) for the St. Helena General Plan Update 2040 EIR was released for public review on April 2, 2018, and the Notice of Availability (NOA) was released on October 23, 2018. Napa LAFCO does not have a record of receiving the NOP or NOA for the project, as a Responsible Agency we request to be notified on all future proceedings related to this project and other projects where Napa LAFCO may have discretionary authority.

Margie Mohler, Chair
Councilmember, Town of Yountville

Brad Wagenknecht, Vice Chair
County of Napa Supervisor, 1st District

Gregory Rodeno, Commissioner
Representative of the General Public

Scott Sedgley, Commissioner
Councilmember, City of Napa

Diane Dillon, Commissioner
County of Napa Supervisor, 3rd District

Erik Lawrence, Alternate Commissioner
Representative of the General Public

Kenneth Leary, Alternate Commissioner
Councilmember, City of American Canyon

Ryan Gregory, Alternate Commissioner
County of Napa Supervisor, 2nd District

Brendon Freeman
Executive Officer

The 71-day public review period for the Draft EIR began on October 23, 2018 and ends on January 2, 2019. Although this extends beyond the mandated 45-day public review period, the 71-day public review period includes State holidays observed by members of the public and public agencies, including Napa LAFCO. This does not allow ample time to adequately review the 620-page Draft EIR and appendices. The public review period should be extended past the January 2, 2019 deadline to allow enough time to review the content of the Draft EIR and foster meaningful public discourse.

Comments on Chapter 2, Project Description

Planning Area

A2-B-2

The Planning Area for the St. Helena General Plan Update and Draft EIR encompasses approximately 3,594 acres including land within the City of St. Helena, the City's Sphere of Influence (SOI), and three adjacent unincorporated study areas outside of the City's SOI. Collectively, the three unincorporated study areas encompass approximately 450 acres. The location, size, and land use designations for each study area are described below:

- Study Area 1: The 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and St. Helena-owned utility infrastructure, including water tanks. Consistent with the Napa County General Plan, the land within Study Area 1 is designated Agriculture, Watershed, and Open Space.
- Study Area 2: The 100-acre area is located south of Chaix Lane near the southeastern boundary of the City and includes spray fields currently used to dispose of treated effluent from the City of St. Helena's Wastewater Treatment Plant. Consistent with the Napa County General Plan, the northern portion of Study Area 2 is designated Agriculture, Watershed, and Open Space. The southern portion of Study Area 2 is designated Agricultural Resource.
- Study Area 3: The 185-acre area is located south of Chaix Lane near the southwestern boundary of the City and includes parcels with existing commercial and residential development along State Route 29. Consistent with the Napa County General Plan, the land within Study Area 3 is designated Agricultural Resource.

Napa LAFCO established St. Helena's SOI in 1974 and the last jurisdictional change occurred in 1997. Currently, the City's SOI and City limits are coterminous with the exception of Lower Bell Reservoir, which is within the City's jurisdictional boundary and outside the City's SOI. Napa LAFCO data identifies the City's jurisdictional boundary as 3,046 acres in size. The St. Helena General Plan Update identifies on page 1-10 that the jurisdictional boundary comprises 3,024 acres. Please verify the acreage included within the legal jurisdictional boundary for the City limits and City's SOI.

The three study areas included within the City's Planning Area are under the jurisdiction of Napa County and have not been approved for inclusion in the City's SOI. The inclusion of the study areas expands the City's Planning Area beyond that proposed in the 1993 General Plan and extends beyond the City's jurisdictional authority. Approval of any SOI amendment is subject to the Napa LAFCO's discretionary review and approval authority

and will be reviewed in accordance with the policies and regulations of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 and Napa LAFCO's General Policy Determinations.

A2-B-3

The St. Helena General Plan Update Land Use Diagram designates the land within the three study areas as either Agricultural Resource or Agriculture, Watershed, and Open Space, which is consistent with the Napa County General Plan. However, inclusion of these areas in the Planning Area conflicts with the following Napa LAFCO policies related to SOIs:

- General Policy Determinations Section III (C)(4) Avoidance of Inclusion of Agricultural and Open-Space Lands: Land specifically designated as agricultural or open-space lands shall not be approved for inclusion within any city's sphere of influence for purposes of urban development unless exceptions are warranted based on the criteria outlined in Section B(3) and (4).
- General Policy Determinations Section III (C)(5) Preference for Infill: The Commission will consider the amount of vacant land within the established sphere of influence of a city when considering amendments and updates. The Commission encourages sphere of influence proposals that promote the infill of existing vacant or underdeveloped land thereby maximizing the efficient use of existing city services and infrastructure as well as discouraging urban sprawl. Conversely, the Commission discourages sphere of influence proposals involving vacant or underdeveloped land that requires the extension of urban facilities, utilities, and services where infill is more appropriate.
- General Policy Determinations Section III (C)(8)(b) The Commission shall encourage cities to first develop existing vacant and underdeveloped infill lands located within their jurisdictions and spheres of influence to maximize the efficient use of available services and infrastructure and discourage the premature conversion of agricultural and open-space lands to urban uses. The Commission shall encourage the development of vacant or underdeveloped infill lands located within cities' jurisdictions before the annexation of lands requiring the extension of urban facilities, utilities, and services.

Pursuant to the aforementioned policies, Napa LAFCO is unlikely to approve inclusion of land specifically designated as agricultural or open-space lands in St. Helena's jurisdictional boundary. In addition, pursuant to Measure J, adopted by Napa County voters in 1990, and Measure P, adopted by Napa County voters in 2008, Napa County lands designated for agricultural use shall not be included within a city's jurisdictional boundary for purposes of urban development. Chapter 2 should be updated to explain the reasoning for including unincorporated agricultural lands within the City's Planning Area.

Buildout Under the Proposed Plan

A2-B-4

Table 2.3-3 on page 2-21 of the Draft EIR includes potential residential development within the Planning Area through the year 2040. Under the "St. Helena" subheading, total residential development at buildout is estimated to be 3,100 units. However, the Existing total (2,700 units) and Future Development total (300 units) add up to 3,000 units. Under the "Study Areas" subheading, total residential development at buildout is estimated to be

A2-B-4

200 units. However, the Existing total (200 units) and Future Development total (100 units) add up to 300 units. The table should be updated to clarify the amount of residential development proposed.

Table 2.3-4 on page 2-21 of the Draft EIR includes projected population within the Planning Area by 2040. Under the "Study Areas" subheading, the total population is estimated to be 700 residents. However, the Existing total (600 residents) and Future Development total (200 residents) add up to 800 residents. Under the "Planning Area Total" subheading, the Existing total is estimated to be 6,400 residents. However, the St. Helena total (5,900 residents) and Study Areas total (600 residents) add up to 6,500 residents. The table should be updated to clarify the projected population estimates.

Table 2.3-5 on page 2-22 of the Draft EIR includes projected number of future jobs within the Planning Area through the year 2040. Under the "St. Helena" subheading, the total jobs at buildout is estimated to be 5,900. However, the Existing total (5,400 jobs) and Future Development total (900 jobs) add up to 6,300 jobs. Under the "Study Areas" subheading, the total jobs at buildout is estimated to be 1,100. However, the Existing total (500 jobs) and Future Development total (100 jobs) add up to 600 jobs. Under the "Planning Area Total" subheading, the total jobs at buildout is estimated to be 7,000. However, the Existing total (6,400 jobs) and Future Development (900 jobs) add up to 7,300 jobs. The table should be updated to clarify the projected number of jobs.

A2-B-5

Comments on Chapter 3.2, Agricultural Resources

Physical Setting

Figure 3.2-1 on page 3.2-3 of the Draft EIR identifies existing Agricultural Land Uses within the Planning Area. Land within the three study areas are shaded a light peach color. This color designation is not included in the figure legend. The figure legend should be updated to include all color designations.

A2-B-6

Chapter 3.2, "Agricultural Resources," of the Draft EIR, relies on the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) to identify important farmland within the Planning Area. Although FMMP is a great resource of information related to statewide important farmland resources, LAFCOs are directed by the State Legislature in Government Code Section 56001 to protect and conserve prime agricultural resources:

> "The Legislature finds and declares that it is the policy of the state to encourage orderly growth and development which are essential to the social, fiscal, and economic well-being of the state.
>
> The Legislature recognizes that the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with sometimes competing state interests of discouraging urban sprawl, preserving open-space and prime agricultural lands, and efficiently extending government services. …"

Prime Agricultural lands are defined according to Government Code Section 56064 as follows: A2-B-6

> "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:
>
> (a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
>
> (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
>
> (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.
>
> (d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.
>
> (e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

Based on direction of the State Legislature through the Cortese-Knox Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO evaluates the importance of farmland based on the methodology outlined in Government Code Section 56064. As shown in Figure 1, the Planning Area contains land designated as Grade 1 – Excellent. In addition, as shown on Figure 2, the Planning Area contains soils designated as USDA, Natural Resources Conservation Service Class I and Class II. Chapter 3.2 of the EIR should be updated to include an evaluation of the land within the City limits or SOI expansion areas that meets the definition of prime agricultural land as described in Government Code Section 56064. This analysis will provide members of the public, Napa LAFCO, and other decision makings bodies with a comprehensive description of existing important agricultural lands within the Planning Area and potential impacts that may result from the adoption and implementation of the St. Helena General Plan Update 2040. This type of analysis would provide Napa LAFCO the appropriate information for their potential consideration of any future SOI amendment requests.

Comments on Chapter 3.10, Land Use, Population, and Housing

A2-B-7

Impact discussion 3.10-3 on page 3.10-27 of the Draft EIR, concludes that the project would not conflict with applicable land use plans, policies, or regulations from other agencies with jurisdiction in the Planning Area. As discussed above, pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO is responsible for the administration of the orderly formation and development of local

governmental agencies and services, preservation of agricultural and open-space resources, and discouraging urban sprawl. Therefore, the impact discussion should be revised to provide a consistency analysis with Napa LAFCO policies related to SOIs and the adopted 2008 Municipal Service Review for the City of St. Helena.

Comments on Chapter 4, Alternatives Analysis

A2-B-8

Description of Alternatives

According to the second paragraph under subheading, "No Project Alternative," on page 4-2 of the Draft EIR, the No Project Alternative would result in approximately 460 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR, the No Project Alternative would result in approximately 560 new residents and 1,380 new jobs. This section should be updated to clarify growth projections under the No Project Alternative.

According to the third paragraph under subheading, "Transportation Network Enhancement Alternative," on page 4-3 of the Draft EIR, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, 335 new housing units, and 935 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR the Transportation Network Enhancement Alternative would result in approximately 900 new residents, 400 new housing units, and 1,100 new jobs. This section should be updated to clarify growth projections under the Transportation Network Enhancement Alternative.

Comparative Impact Analysis of Alternatives

A2-B-9

State CEQA Guidelines Section 15126.6(a) states that:

*"*An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives…"

Chapter 4, "Alternatives Analysis," of the Draft EIR identifies one alternative, the Transportation Network Enhancement Alternative, other than the mandated No Project Alternative. This does not constitute a reasonable range of alternatives to the project as directed by the State CEQA Guidelines. In the spirit of full disclosure and consistent with CEQA Guidelines Section 15126.6 (c), Chapter 4 should be updated to explain why no other feasible alternatives were considered or proposed as part of the alternatives analysis.

A2-B-10

According to the last paragraph on page 4-2 of the Draft EIR, the Transportation Network Enhancement Alternative would reduce significant and unavoidable impacts related to vehicle congestion on State Route 29 in St. Helena. However, as described on page 4-21 of the EIR, the mitigation measures would require actions from the California Department of Transportation which is not subject to the City's control; therefore, the impact would remain significant and unavoidable. In addition, the alternative would result in new significant impacts at three intersections. Chapter 4 should be updated to clarify that the

project alternative would not reduce significant and unavoidable impacts with respect to transportation, rather it would result in environmental tradeoffs.

A2-B-11

According to page 4-29 of the Draft EIR, the Transportation Network Enhancement Alternative is the environmentally superior alternative. However, as shown on Table 4.4-1, the Transportation Network Enhancement Alternative would worsen impacts with respect to flood hazards and permanent ambient noise. In addition, when compared to the project all other impacts remained the same. Contradictory to State CEQA Guidelines Section 15126.6(a), the alternative does not avoid or substantially lessen any of the significant effects of the project but rather worsens impacts. Chapter 4 should be updated to include an analysis of alternatives that avoid or substantially lessen project impacts. This analysis will provide the decision-making bodies, Napa LAFCO, and members of the public with sufficient information for consideration prior to the adoption and certification of the St. Helena General Plan Update and Draft EIR.

A2-B-12

Please contact me with any questions by telephone at (707) 259-8645 or by e-mail at bfreeman@napa.lafco.ca.gov.

Sincerely,

Brendon Freeman

Brendon Freeman
Executive Officer

cc: David Morrison, County of Napa Planning, Building & Environmental Services Director

Figure 1

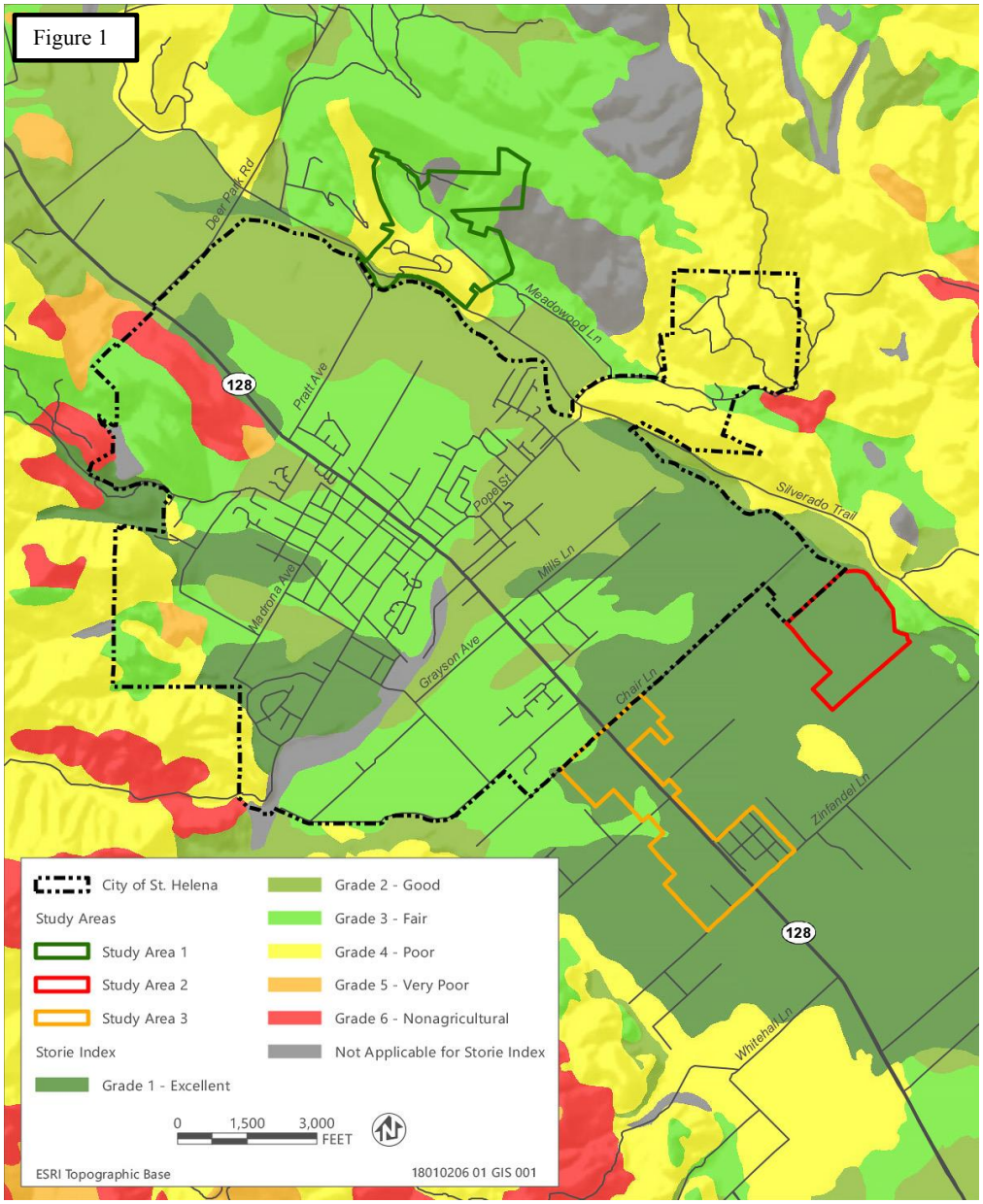
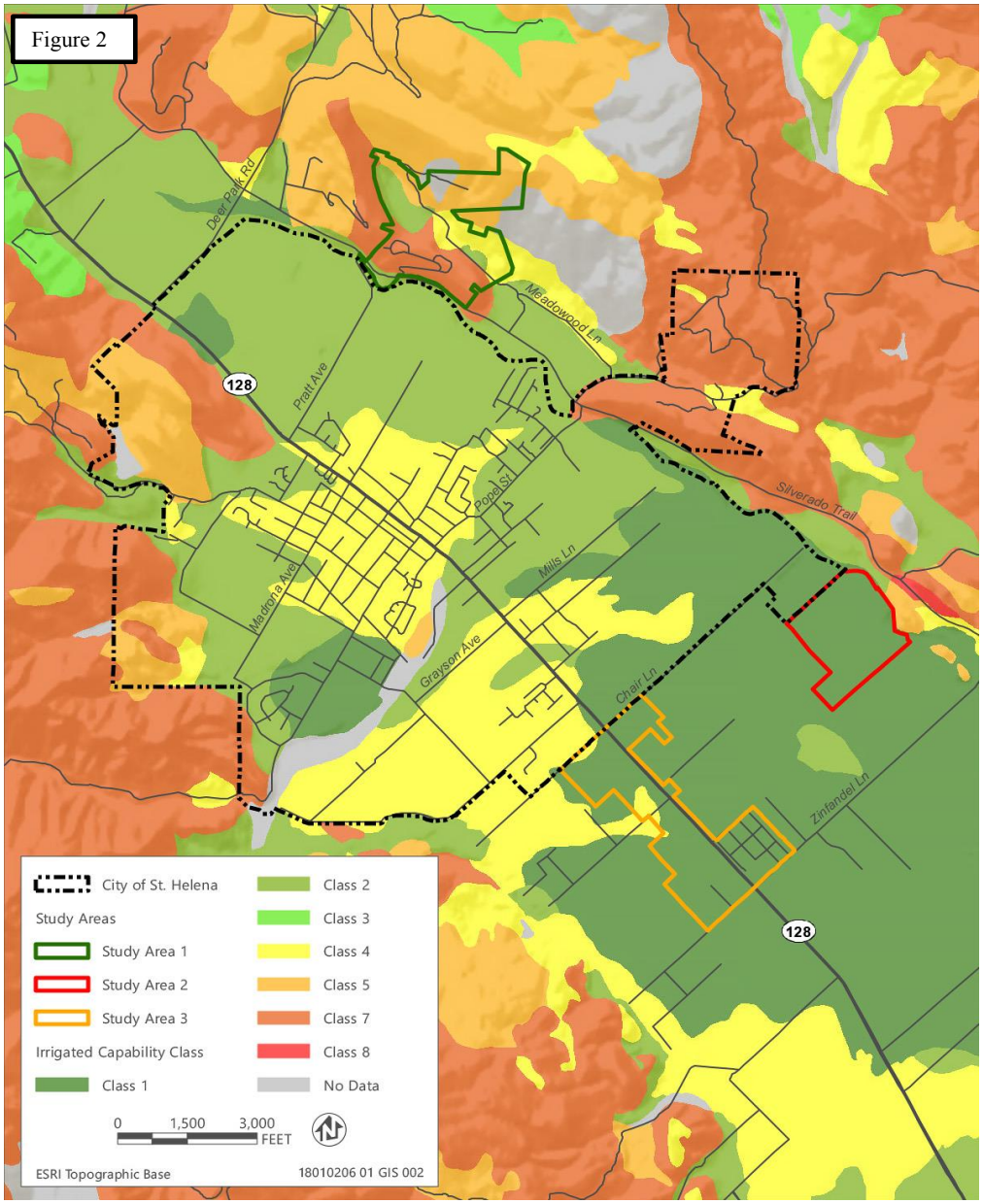

Deer Park Rd
Meadowood Ln
128
Pratt Ave
Pope St
Silverado Trail
Mills Ln
Madrona Ave
Grayson Ave
Chair Ln
Zinfandel Ln
128
Whitehall Ln
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Storie Index
Grade 1 - Excellent
Grade 2 - Good
Grade 3 - Fair
Grade 4 - Poor
Grade 5 - Very Poor
Grade 6 - Nonagricultural
Not Applicable for Storie Index
0
1,500
3,000
FEET
ESRI Topographic Base
18010206 01 GIS 001

Figure 2


Deer Park Rd
Meadowood Ln
128
Pratt Ave
Popel St
Silverado Trail
Mills Ln
Madrona Ave
Grayson Ave
Chiles Ln
Zinfandel Ln
128
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Irrigated Capability Class
Class 1
Class 2
Class 3
Class 4
Class 5
Class 7
Class 8
No Data
0
1,500
3,000
FEET
ESRI Topographic Base
18010206 01 GIS 002

Comment Letter A3-A

A Tradition of Stewardship
A Commitment to Service

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

A3-A-1

December 19, 2018

Noah Housh
Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

RE: **City of St. Helena 2040 General Plan Update**
Draft Environmental Impact Report
Request for Extension of Comment Period

Dear Noah;

Thank you for providing Napa County an opportunity to comment on the draft St. Helena 2040 General Plan Update (Update). Napa County has several significant concerns with the most recent version of the Update, and requesting that the comment period on your Draft Environmental Impact Report (DEIR) be extended to provide time to engage in collaborative discussion seeking alignment of City and County objectives. A 120-day extension is requested. We request that a determination for an extension be made prior to 5:00 p.m. on December 21, 2018.

To the best of my knowledge, Napa County has never commented on any general plan environmental document prepared by the cities and town of Napa County, and instead we have addressed issues through dialogue focused on finding mutually-agreeable solutions. We are requesting that dialogue commence on several aspects of the proposed Update including, but not limited to, the Study Areas located outside of the existing city limits, housing, circulation, emergency services, water and wastewater facilities, and possibly climate action planning.

A3-A-2

As you may be aware, the County is in the midst of preparing a Strategic Plan. Throughout our community engagement process, we have consistently heard that the cities, town and County should be working together, working as partners to benefit our entire community. This necessary partnership step has not yet occurred with your Update. For example, the three very selective Study Areas located outside of the city limits and your Urban Limit Line have been included in the most recent draft of the Update without discussion between our agencies. Although the Update states that these areas are being studied for "informational purposes only" (Update, page 1-12), it is evident that the selective Study Area boundaries, and draft Policies LU1.G and LU1.H indicate the City's intent is to pursue annexation of these areas. The County has no issue with the City conducting meaningful analysis of unincorporated

A3-A-2

lands surrounding the community to inform the public and decision makers, but that is not what is occurring with these the Study Areas.

The boundaries of the Study Areas do not align with any of the reasons given for studying these select areas. The Draft Update implies that these areas must be studied because the City provides utilities and emergency services. Those statement are inaccurate. City water service boundaries, and fire mutual aid boundaries extend far beyond the Study Areas (see attached maps). Police and fire services are for mutual aid. The City is not the sole emergency service provider as is implied. Numerous properties within the Study Area boundaries do not receive City water service, including all of Study Area 2 which is the City-owned sewage treatment plant spray fields. The City provides no sewer service to any of these areas. The only obvious determining factor for the boundaries of Study Areas 1 and 3 is that they align quite strategically with several long-established major revenue generating developments. Smart land use planning principles dictate that the City should focus on expansion of urban growth areas within the city limits before considering expansion of the city limits.

A3-A-3

The latest draft of the Circulation Element calls for a number of new traffic lights, most notably on Silverado Trail. Adding traffic lights without expanding internal road network is not a solution to existing or future traffic conditions. This idea will likely result in greater congestion as well as have a negative ripple effect on County and State roadways. The City's high home values do not allow significant opportunities for lower wage service workers to reside in the community, and results significant commute traffic through unincorporated areas. New development called for in the Update will increase vehicle load within unincorporated areas that has not been satisfactorily addressed in the DEIR. Our agencies need to find a common vision on circulation before the DEIR is certified.

A3-A-4

A3-A-5

A3-A-6

The County would like to explore partnering on efficiencies in City services. We have very successful long running partnerships with the City of American Canyon providing law enforcement services and with the Town of Yountville providing both law and fire services that may merit consideration by St. Helena. As you know, staffing is the single greatest demand placed on local agency budgets, and the degree in which an agency can control those costs reduces pressure on the need to grow revenues. This salary/revenue relationship places a great deal of stress on the City's overarching goal to maintain St. Helena's small town character.

Partnering on affordable housing appears to be of mutual benefit to our agencies. The Update's time horizon is 2040, but housing allocations are only planned through 2023 (in accordance with State mandated housing cycles). It is likely that both St. Helena's and the County's Regional Housing Needs Allocation (RNHA) will be considerably larger in the next housing cycle starting 2023. The City has very limited ability to generate housing trust fund revenue through development impact fees. The County has limited areas where new housing can be placed outside of preserved agricultural lands, and the City has vast tracks of underdeveloped property within the city limits. Those areas should develop before any consideration of city limit expansion is undertaken. Some of those areas may be suitable for housing. A shared vision addressing affordable housing needs through the horizon year of your Update appears to be of critical importance to both of our agencies.

A3-A-7

We understand that the City may be anxious to complete the Update. We believe our request for extension of the DEIR comment period allowing time to partner on inter-jurisdictional issues is the most expedient and cost efficient path to successfully completing the Update. We look forward to meeting with you at your earliest convenience once extension of your DEIR comment period has occurred.

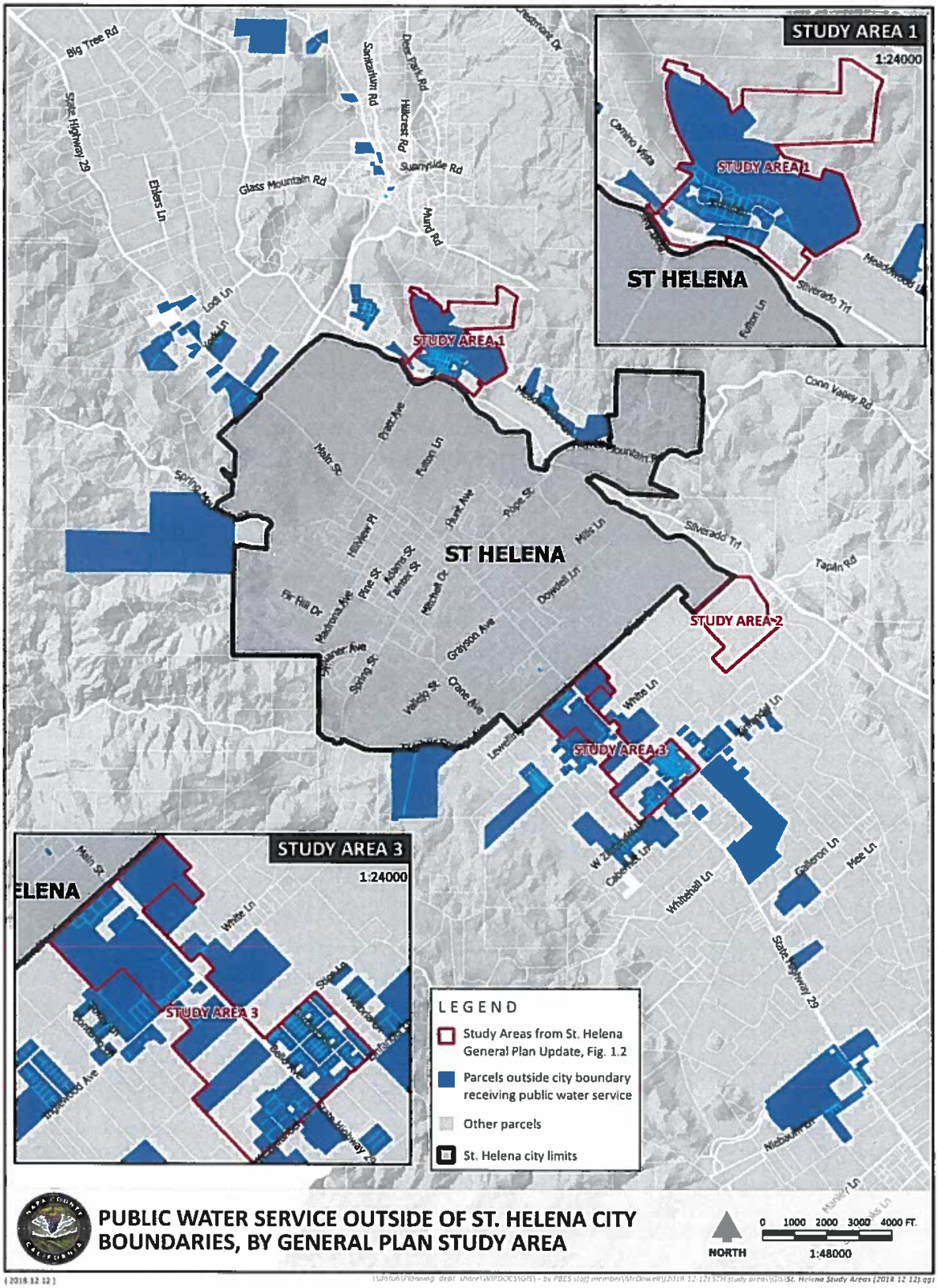
Sincerely,

David Morrison
Director of Planning Building and Environmental Services

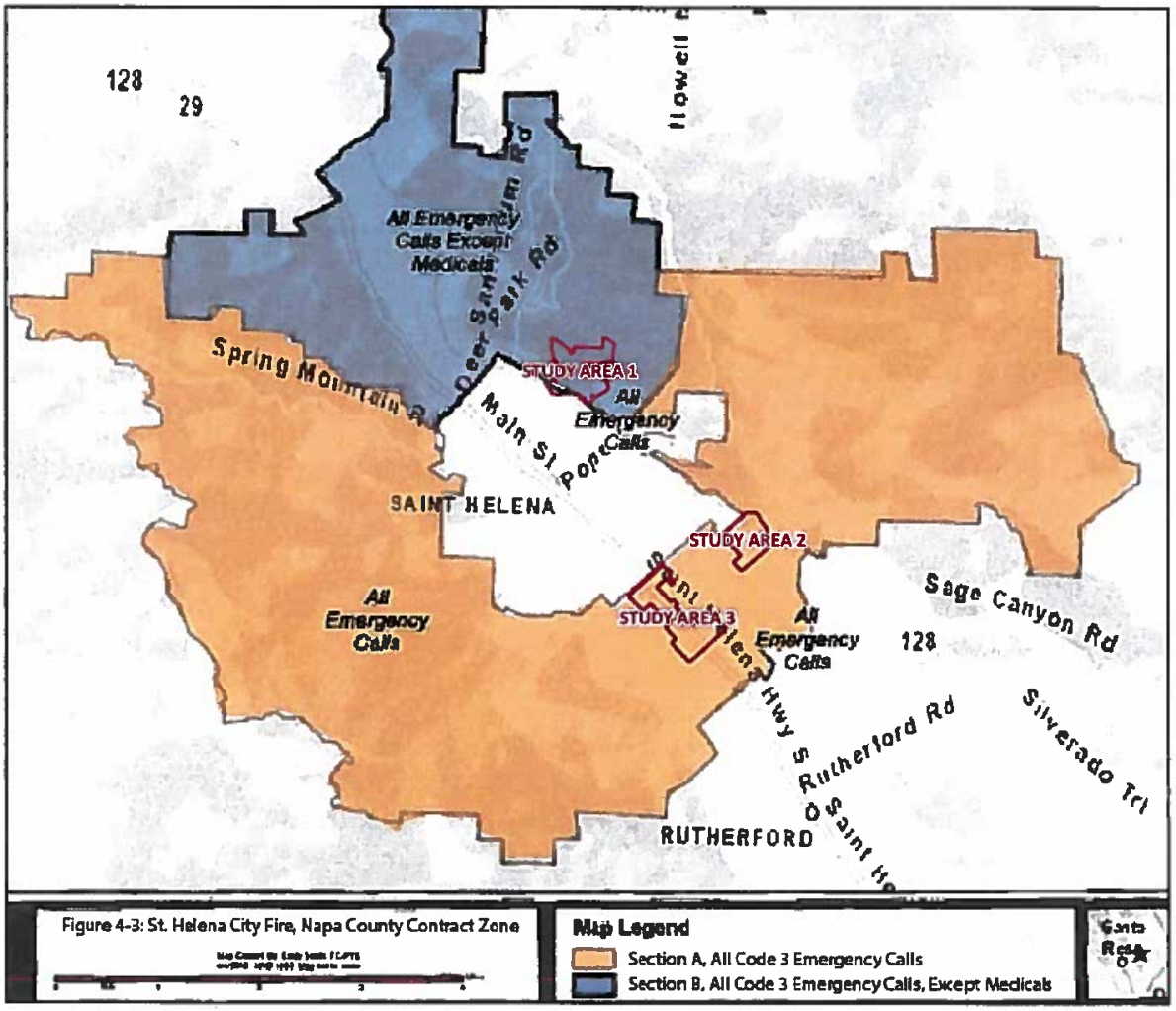
Attachments:
St. Helena Water Service Area Exhibit
Napa County-St. Helena Mutual Aid Exhibit

cc: Napa County Board of Supervisors
Minh C. Tran, County Executive Officer

A3-A-8


STUDY AREA 1
1:24000
STUDY AREA 1
ST HELENA
STUDY AREA 1
ST HELENA
STUDY AREA 2
STUDY AREA 3
STUDY AREA 3
1:24000
STUDY AREA 3
LEGEND
Study Areas from St. Helena General Plan Update, Fig. 1.2
Parcels outside city boundary receiving public water service
Other parcels
St. Helena city limits
PUBLIC WATER SERVICE OUTSIDE OF ST. HELENA CITY BOUNDARIES, BY GENERAL PLAN STUDY AREA
NORTH
0 1000 2000 3000 4000 FT.
1:48000

A3-A-8



ST. HELENA CITY FIRE - NAPA CO. CONTRACT ZONES
BY GENERAL PLAN STUDY AREA

NORTH 0 0.5 1 1.5 2 MI
1:100000

(2018.12.17)

Comment Letter A3-B

A Tradition of Stewardship
A Commitment to Service

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

A3-B-1

January 2, 2019

Noah Housh
Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

RE: **City of St. Helena 2040 General Plan Update**
Draft Environmental Impact Report

Dear Mr. Housh;

Napa County is in receipt of your December 21, 2018 email denying my request to extend the comment period on the Draft Environmental Impact Report (DEIR) for the City of St. Helena (City) 2040 General Plan Update (Update). The time to review the DEIR has been constrained by the holidays; however, I have strong reservations about several aspects of the Update and DEIR. I believe that it would be best to address these issues through direct dialogue, but given the denial of the extension request, I am compelled to include my concerns as comment on the adequacy of the DEIR. Furthermore, the County of Napa has recently completed an unprecedented community outreach effort to develop a three-year strategic plan. In our nearly 40 community meetings, collaboration between the County and the cities and town was a reoccurring theme in many of the conversations. The County sees St. Helena's General Plan as an opportunity to collaborate and we request further engagement and collaboration on the issues outlined in this letter.

Both the Update and DEIR have serious issues that should preclude their adoption and certification until matters have been resolved to our mutual satisfaction. Napa County's comments are provided in detail below. However, in general, our primary concerns can be summarized as follows:

A3-B-2

1. There is inconsistency between many of the stated policies in the draft documents and in the methodology used to define the study areas, particularly as it relates to lands designated as agriculture. The documents place an emphasis on preserving agricultural lands within the city limits and state a policy of protecting agricultural lands immediately outside the city limits. At the same time, the documents pursue studying annexation of lands in the unincorporated area that are protected by Measure J and Measure P. The stated policies and intention of the study areas clearly contradict each other, as any annexation would remove the agricultural protections provided under

Measure J and Measure P. Further, if the City intends on pursuing future development, it would make greater sense to develop in areas currently within the City limits rather than pursuing lands in the unincorporated area and threatening agricultural protections put in place by the voters of Napa County. A3-B-2

2. Both the General Plan and the DEIR project significant job growth in the tourism and hospitality industries. While the number of jobs projected differ significantly between the two documents, regardless, the need for housing that is affordable to the existing and projected workforce is not adequately addressed. Failure to address existing and future housing needs in the City exacerbates the challenges the greater Napa County community faces in providing housing opportunities. A3-B-3

3. The Transportation Element does not address existing traffic congestion or consider further impacts on traffic created by an imbalance between job growth and housing. While the City of St. Helena has the option to adopt Statements of Overriding Consideration and accept that traffic congestion will increase as a result of an adopted General Plan the General Plan should clearly state this as a goal(s) and the DEIR should fully disclose the environmental impacts. A3-B-4

General Comments A3-B-5

1. As noted in my December 19, 2018, request, three Study Areas located outside of the city limits were included in the most recent draft Update. The stated purpose for including these areas was for "informational purposes only" so that the City could conduct meaningful analysis to inform both decision makers and the public. However, as noted in the letter, meaningful analysis in the DEIR does not correlate with the boundaries of the Study Areas. Instead, the DEIR more broadly looks at virtually all unincorporated areas surrounding the City and then applies a mistaken rationale that out-of-agency City services provided to these selective areas makes them eligible for annexation, which is not the case. For example, Study Area 2, which is a City owned spray field, generates no demand for library services, whereas the unincorporated community of Angwin located several miles from the City generates demand for City library services, but is not included within a Study Area. This inconsistent treatment of unincorporated areas purportedly relating to the selective Study Areas is a reoccurring inconsistency over most areas of analysis within the DEIR. This is confusing to the reader at a minimum, and may lead to incorrect assumptions regarding the extent to which study areas qualify for annexation.

2. Proposed Policies LU1.G and LU1.H seek annexation of unincorporated property. The DEIR does not address the potential environmental impacts associated with these policies, which will result in the urbanization of unincorporated farmland. Similarly, Policy LU1.G calls for the extension of sewer service to unincorporated areas. The DEIR does not evaluate this growth-inducing proposal. A3-B-6

3. Both the Update and DEIR identify that the State has ordered upgrading of the City's sewage treatment facilities, but the DEIR does not address how the City plans to overcome this critical A3-B-7

service-deficiency. The City cannot plan for sewer line extensions and the associated impacts of growth without knowing whether the sewage treatment facility can or will be allowed to operate in the future at the level needed to provide additional services. These are significant unmitigated public utility impacts. A3-B-7

4. Policy language in the Update is inconsistent in terms of how the City intends to interact with the County. For example, Policy LU5.2 encourages the County to promote agriculture and limit development on nearby unincorporated lands. As always, the County is eager to engage with the cities and town on this crucial topic. In contrast, Policies LU1.G and LU1.H acknowledge the need to collaborate with property owners and LAFCO in pursuing annexation, but leaves the County out of the stakeholder list despite the fact that annexation cannot occur without both the City and County agreeing to a tax-sharing agreement. The proposed expansion of the City Limits is further vexing by the inability to meet current municipal obligations as noted in number 5 below. A3-B-8

5. The DEIR should also evaluate an alternative that reduces the current extent of incorporated land. The City can clearly meet its projected needs for future growth within the existing city limits, even with the City designating 46 percent of the incorporated area as agriculture and not intended for urban development. The inclusion of farmland within the city limits but outside of the Urban Limit Line adopted by the City is problematic. In essence, the City is obligating itself to provide urban services to 1,451 acres of agriculture, including water, sewage, police, fire, and public administration. This significantly affects the ability of the City to meet their municipal obligations in a sustainable manner. A reduced development alterative that moves rural land out of the City's growth boundary would still meet all of the DEIR project objectives and would result in fewer significant and unavoidable environmental impacts than the proposed project, resulting in the environmentally superior alternative. A3-B-9

Study Areas

A3-B-10

6. The growth assumption methodology presented in the DEIR is confusing and needs clarification. Tables ES-1, ES-2 and ES-3 make little sense, even with the disclaimer footnote noting that figures are rounded to their nearest hundred. First, it is inappropriate to round figures to their nearest hundred in a setting such as St. Helena because the levels of growth in many cases do not reach 100. For example, the City's Regional Housing Needs Allocation is 31 units. Rounding that to the nearest 100 equates to zero. As this confusion relates to the Study Areas, the DEIR appears to have based some of the impact analysis on unrealistic growth assumptions. Table ES-1 suggests 100 new dwelling units in the Study Areas, when in actuality there does not appear to be enough vacant land to accommodate anywhere near this number within the three Study Areas combined. As these lands are protected by the County's Agricultural Preserve and Measures J and P, it is unclear how this projected level of growth can be obtained within the Study Areas, absent City incorporation and rezoning (land within the cities and town are not subject to Measures J and P).

   Likewise, the DEIR projects 1,100 new jobs within the Study Areas under existing City and County zoning/general plan, but only 600 forecasted if the Update is adopted. There is no logical

reason for this, and it appears simply to be a means justify adoption of the Update by comparing it to inaccurate assumptions regarding the status quo. The analysis makes it appear as if the proposed policies in the Update would result in much more intense development than would occur under the County. Proposed City policies call for the annexation of these areas (LU1.G/H), extension of sewer service outside of city limits, an increase in hotel rooms (ES2.6), encouragement of more restaurant seats (ES2.7), and additional water connections, which are all things that are not possible under County regulations. As presented, this information can lead to inaccurate conclusions, which could prevent sound policy decisions. A3-B-10

Finally, the inclusion of the Study Areas ignores the obvious existing availability of developable land currently labeled as Agriculture already located within existing city limits. A3-B-11

Transportation and Traffic A3-B-12

7. CR1.1 in the Update states a desire to promote connected streets; however, the Transportation Element does not include any new congestion relieving additional roadway segments/connections. The element defers to a later unspecified date, any segment improvements that could relieve local congestion.
8. With virtually no planned residential growth in the Update, the goal in CR3.3 of shifting work trips from predominantly single-occupancy vehicles to 45% carpool, transit, walking is unrealistic. The Economic Sustainability policies emphasize job growth in the lower paying sectors such as hotels, restaurants and retail, which will require more commuting at shifts throughout the day and evening. Without significantly increasing the number of people per household (the City is currently 9% lower than the countywide average), even more housing will be needed to house future workers, increasing the likelihood that they will commute from out of the plan area. There will be few homes available from which employees will be able to walk to work. Transit and carpooling are unlikely to meet nearly half of the demands of a service economy workforce. This is not a realistic basis for establishing long-term policy. A3-B-13
9. The discussion of Intersection Traffic Operations on page 3.13-42 of the DEIR includes a recognition of potential impacts to roadways within Napa County; however, the DEIR only evaluated one intersection. The analysis ignores the potential effects of future development in St. Helena on the need for improvements on County roads such as Deer Park Road, Pratt Avenue, or Zinfandel Lane. The DEIR did not comprehensively evaluate the impacts to all County roads within the potential area of impact, especially considering the likelihood of additional commuting referenced in Paragraph 8 above. A3-B-14
10. Any proposed traffic controls on major roadways within St. Helena (esp. State Hwy 29 and Silverado Trail and the crossroads) will cause backups/delays in unincorporated areas. This impact is not recognized or evaluated. A3-B-15
11. As stated in Impact 3.13-4 of the DEIR, the City is relying on development to connect significant circulation gaps in the street network; however, the needed gap closures are within areas that the Update does not designate or plan for future growth. The discussion regarding this Impact goes on to say the DEIR relies on the following to improve traffic congestion and make the roadways A3-B-16

safer: (1) City's support of the concept of complete streets; (2) Napa County's efforts to improvement countywide trails; and (3) Caltrans' work to reduce congestion on State Hwy 29. There is no defined capital improvement plan to ensure completion of the street network. Instead, mitigation relies on the contributions of other agencies, the benefits of which are speculative regarding traffic congestion within the City. This is not a feasible approach to addressing traffic management and is inadequate for the purposes of the DEIR. A full and appropriate traffic analysis should be prepared that considers the potential impacts of leaving the street network in place with no foreseeable future gap closures. A3-B-16

Water

12. It appears that the City water system is at capacity. The DEIR only considers conservation measures as a suggestion, not a requirement, and no new long-term sources or significant reductions are proposed. This seems to be a shortsighted approach and possibly a significant environmental impact when measured against the additional future demands created by the proposed annexation areas, as well as projected hotel and restaurant growth. A3-B-17

13. The documents seem to dismiss the creation and use of recycled water as infeasible but the conclusions lack any credible sources as to why recycled water is infeasible. Since the City owns and operates a wastewater treatment facility, it seems plausible and preferable to find ways to utilize this resource for irrigating the significant agricultural properties within the City limits, as well as other facilities such as playfields, parks, municipal landscaping, etc. A3-B-18

Sewage

14. The City is currently under order to upgrade the municipal wastewater treatment plant. Neither the Update nor the DEIR recognizes this critical issue. This is a significant constraint to the No Project alternative, as well as any future growth proposals. The City should revised the DEIR and the Update to address how wastewater treatment will be improved and funded, before any decision are made regarding new growth and annexation. A3-B-19

Housing

15. The Update calls for significant job growth in services that generally pay lower wages: hotels, restaurants, and retail. However, the Housing Element only plans for 31 residential units through 2023, far short of the General Plan horizon of 2040. This modest housing growth does not serve the current needs of the community and does not meet the future needs given the planned job growth, which is noted as a significant housing/jobs imbalance in the Transportation and Traffic Element (p3.13-2). This unresolved and ongoing imbalance has important implications for many other Impacts evaluated in the DEIR, and calls into question the adequacy of the entire document. A3-B-20

Alternative Analysis

As discussed in Paragraphs 12 and 14 above, the City has serious obstacles in continuing to provide adequate water and wastewater treatment. The DEIR acknowledges a jobs/housing balance without offering any solution and traffic congestion without requiring any relief. The Update is determined to have Significant and Unavoidable Impacts in the areas of farmland loss, air quality, climate change, and traffic Level of Service. The DEIR even concludes that another alternative, not the Update, is Environmentally Superior. Yet despite these concerns, the DEIR A3-B-21

nevertheless recommends the Update as the Preferred Alternative. This gives the appearance that the DEIR analysis does not provide an objective and impartial analysis, but is instead a means to justify the proposed Update. A3-B-21

Our shared community faces broad and fundamental issues that challenge the quality of life in both urban and rural areas. Finding solutions to address traffic, housing, water, and sustainability require regional approaches that involve governments working together. My goal in providing these comments is to establish a more complete analysis of pending policy and create an opening for the City and County to discuss meaningfully how we can achieve our mutual goals. Conflict is an unnecessary expense that does not benefit either participant and prevents the exploration of productive ideas. I look forward to starting our discussion. A3-B-22

If you have any questions regarding this letter, please contact me at (707) 253-4805 or at david.morrison@countyofnapa.org. Thank you for the opportunity to provide comments on the DEIR.

Respectfully,

David Morrison MCR

David Morrison, Director

cc: Napa County Board of Supervisors
Minh C. Tran, County Executive Officer

Comment Letter A4-1

NAPA VALLEY TRANSPORTATION AUTHORITY

A4-1

MEMO

Date: **December 26, 2018**

To: **Noah Housh, Planning Director**
City of St. Helena

From: **Napa Valley Transportation Authority**

Re: **St. Helena General Plan Update 2040**

Upon the review of the St. Helena General Plan Update 2040, the Napa Valley Transportation Authority would like to submit the following comments:

A4-2

General Comment – Please replace all "NCTPA" references to "NVTA" and use the updated logo and Vine brand and color scheme. Also, "VINE" is now "Vine".

P. 5-3
- Should mention the Countywide Bike Plan update now in progress

P. 5-4
- ACS reference, but no reference to the Napa Countywide Pedestrian Plan or Napa County Travel Behavior Study. The St. Helena Pedestrian Plan was adopted by the City Council on May 9, 2017 www.nvta.ca.gov/countywide-pedestrian-master-plan.

P. 5-7
- 2016 Pedestrian Plan should be included along with 2010 ADA Transition Plan.

P. 5-9
- Old Vine Go photo-need to update photos for Vine Transit in plan. NVTA will provide new Vine photos.

P. 5-10
- First bullet - revise sentence regarding Vine Trail-"will" connect St. Helena, not "connects"

P. 5-11
- Please reference the current Countywide Transportation Plan – Vision 2040 – Moving Napa Forward www.nvta.ca.gov/countywide-plan-vision-2040.
- No reference to other plans such as the Countywide Bike Plan, Ped Plan, Travel Behavior Study or Plan Bay Area etc.

P. 5-23

625 BURNELL STREET | NAPA CA 94559 | 707-259-8631 | NVTA.CA.GOV | VINETRANSIT.COM

A4-2

- Where did the reference regarding bike lane and shared parking come from? CVC does not allow parking in bike lanes.
- Class III-"vehicle barriers"-Class III facilities do not include barriers-Class IV includes separation.
- Add Class IV – separated bike lanes with description

P. 5-25

- When was this map completed? There are differences from some recommendations in the current Bike Plan Update that were reviewed by City Staff.
- Should reference Bike Plan Update currently underway.

P. 5-30

- c - These are identified in the countywide Bike and Ped Plans
- e - ACS is mentioned-should include Countywide Transportation Plan, Bike Plan and Ped Plan
- h – should state, "…in accordance with NVTA's Countywide Transportation Plan"

P. 5-32 through P. 5-43

CR1. A

- Include transit facilities

CR1.K

- Include transit improvements
- TDM strategies should coordinate with NVTA

CR2.1

- Figure 5.4 reference – These exist – there is no reference to the Pedestrian Plan or proposed facilities in Bike Plan update which have created these networks. Change to, "Update comprehensive bicycle and pedestrian networks identified in the Countywide Bike and Pedestrian plans that enhance neighborhood connectivity."

CR2.6

- No reference to the Safe Routes to School (SRTS) program which serves St. Helena schools.

P. 5-38 through P. 5-42

CR2.D

- Caltrans Bicycle Transportation Account has been replaced by the Active Transportation Program-there are new requirements under this program-see requirements in adopted 2016 Pedestrian Plan-update reference.

CR3.1

- TDM-no discussion of SB 1339 compliance/requirements or of NVTA's TDM programs.

CR3.4

- TDM Programs-include coordination with NVTA

CR 3.5

- Should mention SRTS program

CR4.5

- "a" SRTS program – should be "the" SRTS program

Comment Letter B1

From: Jerry Hyde [mailto:jerry@jerryhyde.com]
Sent: Wednesday, December 19, 2018 6:52 PM
To: Noah Housh
Subject: RE: Meeting

December 19, 2018

Hi Noah, thanks for the note.

Quick Background: I worked with Greg Desmond starting in around 2009 up through Victor Carniglia in mid-2016 on the Noise Element and the EIR. We made it a better document beyond the "boiler plate" stuff the sound consultants provide on a short budget. Everything I did and input provided was done "through channels" through Greg, to the GP consultants and then to the sound consultants. This work included a five month noise study I did on background noise levels in St. Helena, what are commonly called "ambient" noise levels, information the consultant failed to provide, or understand. All this work was done, not through the public comment process, but as a *pro bono* technical consultant to the City. B1-1

The EIR: I had done a review for Carniglia in July 2016 of the EIR pointing out a major flaw. It has been corrected in the current IER, so I have no comments to make on that. Other than, really, 90% of the EIR is total "boiler plate" and can be found verbatim in any other noise EIR the consultant has done. B1-2

The Noise Element: I do have comments on this, as I fear the current form has reverted back to the original, before the work we did between 2009 and 2016. B1-3

Let's meet the week of January 14th. We'll need some time, but this is about giving our City a quality document, right? About any time is fine with me, so let me know. B1-4

In the meantime, have a great time off. I will too. ☺

Yours,

Jerry
Fellow, Acoustical Society of America (ASA)
Fellow, British Inst. of Acoustics (IOA)
Lecturer in Architectural Acoustics: IOA Hamburg (Germany), October 2018
Member: Institute of Noise Control Engineering.

Comment Letter B2

From: Glenn Cook [mailto:cookwinery@gmail.com]
Sent: Thursday, December 20, 2018 3:35 PM
To: Noah Housh
Subject: General Plan

B2-1

Noah,
I noted with interest in the newspaper that the recent public hearing on the EIR was "poorly attended". One of the reasons suggested for the crowd of 4 persons in attendance was that "their comments just don't matter". That sure strikes home to me.

When we bought our first home here on Tainter Street in 1986, I discovered that we needed to plan our trips to buy building materials at Central Valley Supply to avoid the back-up on 29 on our return. Often, we would loop around Sulphur Springs, Crane and Valley View Streets which I'm sure the neighbors appreciated.

After we moved, I had a new alternate plan; driving south on 29, across Zinfandel, and back up the Trail.

One day, in total frustration, I stopped into the Planning Department to ask the OBVIOUS QUESTION. Why isn't there an alternate to and through Saint Helena that provides access to the businesses south of town. I suggested perhaps an extension of Starr or some other street, or extending Dowdell or Vintage Streets to the Trail. I was told "that is in the Plan". That made sense to me. After all, it would allow businesses like Central Valley, Harold Smith and all the rest to provide better service to the community. Added to that, emergency vehicles could have better access North and South.

That was over thirty years ago.

Now, I know the wheels of government turn slowly so I would stop by the Department every five or ten years to check on that issue. At first I was told it was "difficult to cross farm property", even though I did that to drive my tractor to Lampson for service and repairs. Later, other reasons were given culminating in the latest nonsensical response; "But, we are planning to put more stop lights in on highway 29 and the Trail". WHAT??? So we now have the added inconvenience of providing signal light turn-in spacing for those entering the 29 backup. Consider, reducing the traffic congestion on highway 29 would increase SAFETY. Stop lights don't decrease vehicle counts.

But now, I get it. My comments just don't matter. That's why I don't stop by anymore.

For what's worth,
Glenn Cook

12-24-18

~~April 5, 2018~~

Also - to be added to comentary on the 2018 EIR-General Plan

~~January 30, 2018~~

To the City of St. Helena- RE: the ~~new Hunter~~ General Plan EIR:

Peter Mennen 12-24-18

Comment Letter B3

B3-1

In 1997, I was selected by Friends of the Napa River to sit on the Committee appointed by St. Helena's City Council to decide the best way to spend our portion of Measure A funds which were to be used to minimize the risk of flooding on Napa River and Sulphur Creek inside City Limits, with the **requirement** that any alterations would be carried out within a "Living River" context, assuring that any changes would enhance the river's environmental health while benefiting us.

While most municipalities along the river (especially the City of Napa) made an honest effort to abide by the "Living River" requirement, the St. Helena Committee that took on this task was corrupt through and through, and no one other than I gave even a pretense of paying attention to "Living River" principles. It was an appalling experience for me. The fix was in from the beginning, and among the proposals that were floated was a cynical rerouting of Napa River above Pope Street bridge that would leave the riparian woodland intact for the moment, but was deliberately designed to erode and destroy both banks and all the riparian trees and habitat over a period of a few years. I made enough of a stink about that cynical plan that it was eventually dropped from consideration, but sadly nothing better was put forward.

In an attempt to get the Committee to understand what the implications of their proposals would be for people living downstream and the survival of Pope Street Bridge, I personally funded through Friends of the Napa River a brief study by the highly regarded hydrology experts Philip Williams and Associates, which we gave to the St. Helena Measure A Committee so they could begin to understand the downstream impacts above Pope Street Bridge and to the bridge itself if they did one or another of their plans. Williams' mapping of flow patterns revealed great downstream risks involving the plan they settled on: the building of a long, riverside levee that cut off a huge, undeveloped, low-lying area that accommodated flood water every time there was a major rain event and took pressure off the area just above the bridge. As I recall, I spent $20,000 on the Phil Williams study that gave the Committee basic prognostications that would help them understand the implications of what they were proposing; but to my knowledge, that study was completely ignored by every member of the Committee and the highly paid consultants as well. That's when I washed my hands of the crooked Committee and its phony "Living River" process and quit in disgust.

If anyone had genuinely cared, I was prepared to further fund Philip Williams to assure a legitimate "Living River" solution was developed, as **required** by Measure A, which, as you may recall, passed with more than the necessary two thirds majority of the county's vote! This "super majority" made the "Living River" provision a **mandatory** aspect of whatever alterations were carried out using Measure A funds, as opposed to a simple majority vote that could be given little more than lip service.

St. Helena's actual alteration: the huge, lengthy levee which destroyed many acres of our priceless existing floodplain, was in complete violation of both common sense and the "Living River" mandate. It was done for no reason but to destroy an existing, critically important and legally protected floodplain in order to turn all that low land into a huge housing development in the most unsuitable possible location. Now, during flood events, the changed river flow below the levee is destroying the once-stable bank just above Pope Street Bridge. A beautiful, historic mansion- I think it is 2240 Pope Street- is already being put at serious risk of toppling into Napa River as the high bank there is rapidly collapsing. This massive erosion, which will soon destroy the great old estate that existed safely there for more than a century, is a direct result of the changed flow dynamics caused by the levee's elimination of the flood plain that existed just above it. **I believe the City is directly liable for the upcoming destruction of that property!** The destructive, illegal levee, along with Hunter's proposed development that is bound to flood, has got to go **NOW!** This is all the product of a corrupt enterprise between a past Council, City staff and Hunter.

Peter Mennen PO Box 421 St. Helena CA 94574 707-963-1170

CCs- Chuck Vondra, John Milliken, and the affected property owners Pope Street

Peter Mennen 12-24-18

11

B3-2

CITY HALL, 1480 MAIN STREET
ST. HELENA, CALIFORNIA 94574
(707) 963-2741

Add to 2018 EIR
PM 12-24-18

October 6,1998

Peter Mennen
P.O. Box 421
St. Helena, CA 94574

Re: Pope Street Bridge Park

Dear Mr. Mennen:

Jerry Cormack and I have both tried to return your calls but there was no answer nor answering machine at the number that we were given (963-~~2688~~). 2668-

The Pope Street Park Master Plan that you saw in our offices is a conceptual plan that was prepared from the recommendations of the Parks and Recreation Commission. The plan is currently being reviewed by staff and two members of the City Council. There are a number of concerns with the plan and alternatives will be reviewed.

This was in fact done! PM 12-24-18

I have not heard of any plans to rip-rap the riverbank next to the park. There are some existing areas of bank stabilization north of the bridge that are in need of repair. The proposed proximity of the ball field to the river is a concern to us also. Whatever park project occurs must be in compliance with the standards of the Department of Fish & Game who will establish the minimum distance that the improvements must be from the top of bank.

I find it hard to believe the destruction of the Napa Riverbank was/is "in compliance" with the requirements for a threatened/endangered steelhead/salmon spawning river in California

PM 12-24-18

We are planning to have preliminary meetings about the park with concerned groups and citizens. We would like to have some alternatives for them to look at as they express their concerns. These meetings will be followed by public hearings before the Planning Commission and the City Council for approval of a Use Permit for the park. No meetings have been scheduled yet, but we will notify you when they are.

Please call me at 963-2741 if you have any other questions.

Yours truly,

Carol Poole
Assistant City Planner

I was on this committee. My input and concerns were ignored. PM 12-24-18

(Planning/98.Projects/98-74/Mennen)

B3-2

LAW OFFICES OF

JAMES R. ROSE

1500 RAILROAD AVENUE
ST. HELENA, CALIFORNIA 94574
ROSELAWINC@SBCGLOBAL.NET

JAMES R. ROSE
KATHARINE HELDT FALACE

TELEPHONE: (707) 967-96
FACSIMILE: (707) 963-07

Add to 2018 EIR
PM 12-24-18

PM. 12-24-18

May 1, 2009

CONFIDENTIAL

Peter Mennon
P.O. Box 421
St. Helena, CA 94574

Re: ***Fulton Lane Residents v. City of St. Helena***

Dear Peter:

To keep you apprised on how this case is developing, we have been fortunate to obtain two engineers who we have consulted with who have reviewed the construction drawings for the flood mitigation project in question. Fortunately, both engineers have identified errors in calculations and errors in assumptions that the City engineers relied upon. That is enough for us to initiate a lawsuit. Also, fortunately there is a ten year statute of limitations on any defective design cases. Since this is clearly a defective design, we don't have to worry about some of the limitations' issues that we were dealing with on some of the other causes of action.

The Foundation documents which justified this project were bogus.

We hope to have a lawsuit filed no later than mid next week with the assistance of our new engineers. I will keep you apprised as matters develop. Since you are part of the citizen's group involved in this action, we continue to have a confidential relationship and your identity will be treated as such.

Thank you again for all your assistance in this matter. I would like to possibly meet with you and Sampson early next week to give you a final once over before we file the action. Please call with any questions.

The destruction of the landowners' property on the west side of Napa River just above the Pope Street bridge is the result of the "errors and in calculations and errors in assumption that the City engineers relied upon." !!!

Very truly yours,

THE LAW OFFICES OF JAMES R. ROSE

JAMES R. ROSE

B3-2

City of St. Helena
"We will conduct city affairs on behalf of our citizens using an open and creative process."

1480 Main Street
St. Helena, CA 94574
Phone: (707) 967-2792
Fax: (707) 963-7748

www.cityofsthelena.org

February 25, 2016

To the City of St. Helena — please use all this in your file of comments on the ~~[illegible]~~ 2018 EIR. P.M. 12-24-18

Mr. Peter Mennen
P.O. Box 421
Saint Helena, CA 94574

Dear Peter,

I wanted to let you know that I received the materials you delivered to City Hall on January 28, 2016 related to the Flood Control Project.

I know this was and continues to be a controversial project for the citizens of St. Helena. My goal in hiring a forensic accountant is to review the revenues and expenditures related to all the projects in an effort to ensure all the funds are accounted for and were properly spent in accordance with contractual obligations. Although the scope of the review does not include engineering, environmental or other aspects of the projects, I will add your documents to the file and make them assessable to the forensic accountant.

Sincerely,

Jennifer Phillips
City Manager

Wed, Feb 10, 1904 3:37 AM

B3-2

From: Big Ricki <bigricki@earthlink.net>
Date: Wednesday, February 10, 1904 3:37 AM
Subject: Flood control Technical Report

for 2018 EIR
12-24-18

Peter Mennen
PO Box 421
St. Helena CA
94574
March 15, 2002

Mike Praul, City Engineer
City of St. Helena
1480 main Street
St. Helena CA 94574

Dear Mr. Praul:

I was one of those selected to participate in the proposed design of a flood control project to be carried out using "Measure A" money that would reduce the impact of flooding on the community of St. Helena. As a bit of history, Measure A was passed by the voters of Napa County as a method of achieving flood control in ways that would be considerate of the biological integrity of the Napa River, as opposed to a flood control design proposed by the Army Corps of Engineers, which was rejected by the citizens of Napa County because it was destructive to river values.

A county wide community group which named itself "Friends of the Napa River" pulled together and began an extraordinary effort to rethink the way in which flood control could be designed so that the Napa River would benefit from sophisticated flood control methods that would help the river regain some of its former behavior in the days before we hedged it in and destroyed its ability to spread out into a flood plain during heavy rain events. This would be done in ways sensitive to the ecological values of napa River. This Measure A funding came to pass by a two thirds vote of the county because of the incredible work Friends of the Napa River did to educate county citizens of the way in which flood control could be handled in ways that would improve the beauty and functionality of napa river, which as you know has been declarted an impaired waterway by Congress, due to the many damaging alterations we have wreaked upon the river in the past hundred years.

I was selected to as a participant in the St. Helena process to represent the vision of Friends of Napa River, to assure the local plan would incorporate the standards for flood control that were integral to any project that would be put forward. After all, a river-friendly design was the whole impetus for Friends of the Napa River to do the extraordinary work that made measure A come to pass.

Regrettably, I found myself marginalized as the planning process went on, and I can recall at least one specific incident where i was told the concept of retaining a tree-lined riparian corridor along the river bank would be an impossible, and then later I learned this devestating concept was built into the design with the justification that, since i had not objected to it, Friends of the River must think it was okay. Toward the end, i was not even notified of upcoming meetings of the St. Helena flood design group, much less invited to participate in the role of a "Friends of the Napa River" advisor. I only learned after the fact that a meeting had taken place, when someone questioned me about why I was no longer attending.

Finally, after the committee agreed upon a proposed design without even an opportunity for "Friends of the Napa River" to have me participating in the proposal that went forward to the city, you were kind enough to give me a copy of the plan. I sent that copy to "Friends of the Napa River," who made the attached comments and sent thaem back to you on February 22, 2002. I am writing this letter just so that I can have some input into the process now, having been excluded in a manner I believe is illegal, and thus depriving "Friends of the Napa River" to have any legitimate input, or even an opportunity to review, the proposal before it was submitted to the St. Helena City Council. Since I

Wed, Feb 10, 1904 3:37 AM

B3-2

as selected as an official member of the committee, specifically to represent the interests of the "living river" concept that drove the passage of measure A in the first place, this whole process strikes me as bogus.

And not surprisingly, the fundamental design vision of all the possible proposals for flood reduction in St. Helena is antithetical to any kind of living river vision. In each of the possible projects, the riparian corridor along the river is utterly sacrificed, destroying any number of critical aspects of the living river vision. there are many mature and even landmark-sized, "heritage" trees within St. Helena city limits along the Napa River which, I am only now told, will be deliberately left in a narrow, eroding ridge between the current rivercourse and a new floodplain beyond the existing riparian corridor. I am informed that it is understood and expected that the entire riparian stand along both banks of the Napa River within St. Helena city limits will be destroyed over a short period of time as the river cuts into the banks and causes all those trees to come crashing down, leaving nothing of their shade protection for the river all along the banks of the river. In their place will be a great, vacant swath of little or no biological value, at a terrible price to the river. This is a mockery of the real measure A, which was to enhance the river's values as a part of flood control, not destroy them.

Also, a multitude of other benefits, beyond the loss of all their beauty to all of us citizens, will be lost. Many of those trees are mature oaks, whose wildlife value cannot be overestimated. they are the lynchy-pin of biological integrity along the river, and most of them already have been lost to human development. To deliberately destroy these last precious corridors of mature oaks and complex vegetation is intolerable and unacceptable. It is in direct defiance of the driving concept of Measure A. It makes our plan a farce. Just for your improved understanding of the value of oaks, I am including a copy of an excellent book on the complexity and value of oak trees entitled "The Life of an Oak." It was produced by the California Oak Foundation, with major funding from, among others, the Mennen Environmental Foundation. Perhaps you and others will gain some perspective on what you are attempting to throw away.

Measure A was not passed so that a few interest groups in Napa County could benefit at the expense of tremendous tax costs to the rest of us and the sacrifice of the Napa River. It was not put forward so that local politicians could make a lot of hay on its back by corraling a clot of special interest votes and make self-serving claims on campaign literature when they ran for larger office. Measure A had far loftier goals of spending our tax money to benefit both people and the Napa River, and that is the Initiative we as a county passed. St. Helena's Measure A oversight committee has unconscionably distorted the very heart of the "lving river" intent of the measure whose county tax money they (we?) were expected to spend in an appropriate way.

The Mennen Environmental Foundation has purchased acreage on Sulphur Creek to restore in a manner that will benefit flood control and biological values. Our expert evaluators have proposed solutions that are diametrically opposed to the proposal being forwarded to the City of St. Helena by the oversight committee. I absolutely wash my hands of the disgraceful and shameful set of proposals that "my" committee has certified for your consideration and acceptance. I am appalled. I am certain Friends of the Napa River would not touch these proposals with a ten foot pole. They are a joke- a slap in the face to everyone who put his/her heart and soul into bringing Measure A to fruition.

Sincerely,

Peter Mennen

CCs: Friends of the Napa River
St. Helena City Council

Received on 3-13-02 - Comment made on 3-15-02

B3-2

STAFF REPORT

APPROVED FOR
CITY COUNCIL AGENDA
DATE: 3/7/02
CITY MGR:

The envelope says the city mailed this on 3-8-02 Never received this material until after 3-12-02 I could not comment by 3-12-02

DATE: March 12, 2002

TO: City Council

FROM: Myke Praul, City Engineer MP

RE: Clarification of Council Direction on Comprehensive Flood Study Environmental Impact Report

Cc: City Manager

BACKGROUND:

The environmental consultant for the Comprehensive Flood Study, CDM, has initiated the public input process to facilitate preparation of the draft environment impact report. At the Council meeting initiating this process, the Council directed staff to analyze three plans; the no action plan, the Minimum Plan and the Enhanced Minimum Plan. In response to a question by a member of the public, the Council also directed staff to analyze a plan that combined the extension of Adams Street with the Minimum Plan. Staff now presents the results of that analysis and requests clarification of the Council's prior direction.

DISCUSSION/ANALYSIS:

As the Council recalls, the Enhanced Minimum Plan (EMP) was a compromise alternative between the Maximum Plan (MaP) and the Minimum Plan (MiP). The MaP reduced the 100-year water surface elevation (WSE) 3.1 feet at the Hunt's Grove Apartments but required the relocation of 60 homes within the Vineyard Valley Mobile Home Park (Park). It included a fill area to the north of the Park on which the relocated homes would be placed. The MiP reduced the WSE 1.6 feet at the same location with the elimination of 17 spaces and loss of approximately 7 to 8 existing homes. The existing floodwall would have to be raised approximately 3.5 feet or a new levee constructed to the north of the wall at the same elevation. The EMP was developed as a compromise to the two distinctly different plans. It would reduce the WSE 2.4 feet and includes the relocation of 29 homes to the vineyard area north of the Park which would be flood proofed by the roadway embankment of an extension of Adams Street. The Council asked what is the feasibility of combining the Adams Street extension with the MiP.

MBK has computed the hydraulic benefits of a plan that would include the Adams Street extension but with the river terracing of the same area as the MiP, or the loss of 17 spaces within the Park. The resulting reduction of the 100-year WSE is about the same as the MiP, which is one foot less than the EMP. The elevation of the roadway embankment would need to be the same height as the levee north of the floodwall or about 3.5 feet above the elevation of the existing wall, a foot higher than the EMP.

Staff and the consultants believe that the environmental impacts of this revised alternative would be somewhere between the EMP and the MiP. While it would require a larger footprint than the

FOR 2018 EIR PM 12-24-18

MiP, the structural elements would be very similar with impacts to the Park residents also being very similar as the MiP.

B3-2

IMPACT:

Further analysis of this hybrid alternative will take additional time and funding. At the last Council meeting, representatives from the VVMHP Homeowners Association presented a petition in support of the EMP, which was signed by approximately 90% of the residents of the Park. The revised alternative would still eliminate some homes in the Park where the EMP would not.

FISCAL IMPACT:

Staff will return to Council at the meeting of March 26, 2002 to discuss the current financial status of the study and bring recommendations to extend the consultant agreements with the funding requests necessary to complete the study. Confirming the above direction will reduce the amount of analysis required for the EIR.

ALTERNATIVES:

1. Confirm prior direction to staff and the consultants to analyze the No Action, Minimum and Enhanced Minimum Plans through the EIR process.

2. Direct staff and the consultants to include a fourth alternative for further environmental analysis that combines the Minimum Plan with the Adams street extension.

RECOMMENDED COUNCIL ACTION:

Staff recommends that the Council confirm the prior direction to staff and consultants to analyze the No Action, Minimum and Enhanced Minimum Plan through the environmental review process.

ATTACHMENTS/EXHIBITS

None.

00147

B3-2

I did not receive this until after 3-12-02 P.M. I could not comment by 3-12-02.

For 2018 ELR PM 12-24-18

Mayor : Ken Slavens
Vice-Mayor: Frank Toller
City Council: Joe Potter
Bill Savidge
Sampson Bowers

AGENDA
REGULAR MEETING
ST. HELENA CITY COUNCIL
CARNEGIE BUILDING COUNCIL CHAMBERS
1360 OAK AVENUE, ST. HELENA
MARCH 12, 2002
6:45 P.M. CLOSED SESSION
7:00 P.M. REGULAR SESSION

Prior to the meeting the public may review available information at City Hall or at the George and Elsie Wood Public Library.

A person who is dissatisfied with a decision of the City Council may have the right to a review of the decision by a Court. The City of St. Helena has adopted California Code of Civil Procedures Section 1094.6, which generally limits to ninety (90) days the time within which a decision of the City Council may be judicially challenged. If a person challenges a decision in Court, he or she may be limited to raising only those issues that were raised at the Public Hearing described in this notice, or in written correspondence delivered to the City Council at, or prior to, the Public Hearing.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact City Hall, (707) 967-2792. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting (28 CFR35.102-35.104 ADA Title II). However, City staff will attempt to assist at any time with accessibility. The City Clerk has equipment to assist those with a hearing impairment.

The City Council will convene in Open Session at the stated time, but will then adjourn to any Closed Sessions(s) listed on the agenda. The Council will reconvene in Public Session at 7:00 p.m. at that time, if appropriate, any actions taken during the preceding Closed Session will be announced. If necessary, the Council may reconvene in Closed Session to continue discussion of listed items following the completion of other business.

****

I. 6:45 P.M. CLOSED SESSION
7:00 P.M. OPEN SESSION

Conference with City Negotiator – City Manager
Negotiations with Unrepresented Employees (Department Heads)
and St. Helena Employees Association (SHEA)
Brown Act: 54957.6

PLEDGE OF ALLEGIANCE

1. **ROLL CALL**

2. **APPROVAL OF MINUTES** – January 29, 2002 and February 26, 2002

3. **REPORTS BY STAFF AND CITY COUNCIL:** Reports by staff and/or Councilmembers on items of general interest or action taken during Closed Session. Brief questions for clarification may be posed and answered, and Councilmembers may request that items be placed on a future agenda. Except under certain circumstances, the Brown Act prohibits any other discussion or action by the City Council.

4. **PUBLIC FORUM:** An opportunity for the public to directly address the Council on items of interest to the public not on the agenda. Any person addressing the Council is subject to the requirement of providing his or her name and address, and limiting comments to five minutes. Because of restrictions imposed by the Brown Act, the Council may not engage in substantive discussion, nor take action on matters not described on the agenda.

5. **PRESENTATIONS AND PUBLIC RECOGNITIONS**

   - Presentation by Jill Pahl, Upper Valley Agency Waste Management, Re: Solid Waste Rate Adjustments

II. CONSENT ITEMS: Members of the Council or the public may ask that any items be considered individually for purposes of considering alternative action, for extended discussion, or for public comment. Unless that is done, one motion may be used to adopt all recommended actions.

6. Planning Commission Actions of March 5, 2002 *Recommended Action:* Approve

7. Accounts Payable and Payroll *Recommended Action:* Approve

8. Resolution Approving Hanging of a Banner Across Main Street Promoting the Calistoga Education Foundation Spring Benefit Auction
   Recommended Action: Adopt

9. Park and Recreation Minutes of February 25, 2002
   Recommended Action: Note & File

10. Report from City Manager Re: City's Emergency Managers Attending Integrated Emergency Management Course (IEMC) *Recommended Action:* Note and File

11. Resolution Establishing a Voluntary Contribution Check-off Program by Supporting "Action for Better Cities" (ABC) *Recommended Action:* Adopt

12. Resolution Accepting Offsite Improvements by Robert & Katherine States Burke Trust at 2995 Spring Street and Authorization to File Notice of Completion
Recommended Action: Adopt

13. Resolution Authorizing a Professional Services Agreement with Oswald Engineer Associates for Design, Environmental Review and Permitting of the Recycled Water Project
Recommended Action: Adopt

14. Resolution Approving a Budget Appropriation for the Purchase of a Street Sweeper
Recommended Action: Adopt

III. PUBLIC HEARINGS (Since Public Hearings do not begin before 8:00 p.m., Scheduled Matters listed below may be considered before that time.)

15. City Council Appeal of Planning Commission Approval of Request of the Wine Service Co-op for a Tentative Parcel Map to Divide an Existing 7.8 Acre Parcel Located at 1150 Dowdell Lane, on the East and West Side of Fountain Avenue between Dowdell Lane and Mills Lane, into Two Parcels of 5.9 Acres and 1.9 Acres with an Offer of Dedication for Land for the Future Extension of Fountain Street and Realignment of Mills Lane (APN 009-660-003) (Exempt from CEQA) (Planning Director)

16. Request of Julian Inman, Representing Jack and Diana Varozza, to Rezone Property from A-20: Twenty Acre Agriculture to A-20: HP: Twenty Acre Agriculture with a Historic Preservation Overlay. The Application also Includes a Request for a Use Permit and Design Review to Refurbish a Historic Winery Building and to Operate a 20,000 Gallon Small Winery at 514 Pratt Avenue (Planning Director)

17. City Council Preliminary Review of Proposed General Plan Amendment Pursuant to Chapter 26 of the St. Helena Municipal Code as Initiated by Kevin Twohey to Process an Application to Change the Land Use Designation for the Property Located at 738 Main Street from Office to Service Commercial to Allow the Operation of Whiting Nursery on the Project Site (Planning Director)

IV. SCHEDULED MATTERS (Since Public Hearings do not begin before 8:00 p.m., Scheduled Matters listed below may be considered before that time.)

18. Request for Direction Re: Environmental Review of Comprehensive Flood Study (Public Works Director)

19. City Council Discussion of Modifications to Bed and Breakfasts Ordinance (Planning Director)

20. City Council Discussion of Moratorium on Small Winery Applications (Planning Director)

21. Request for Reconsideration of Council Action of February 26, 2002 Regarding Request of Peter Story for a Use Permit and Design Review at 100 Pratt Avenue (Councilmember Bowers)

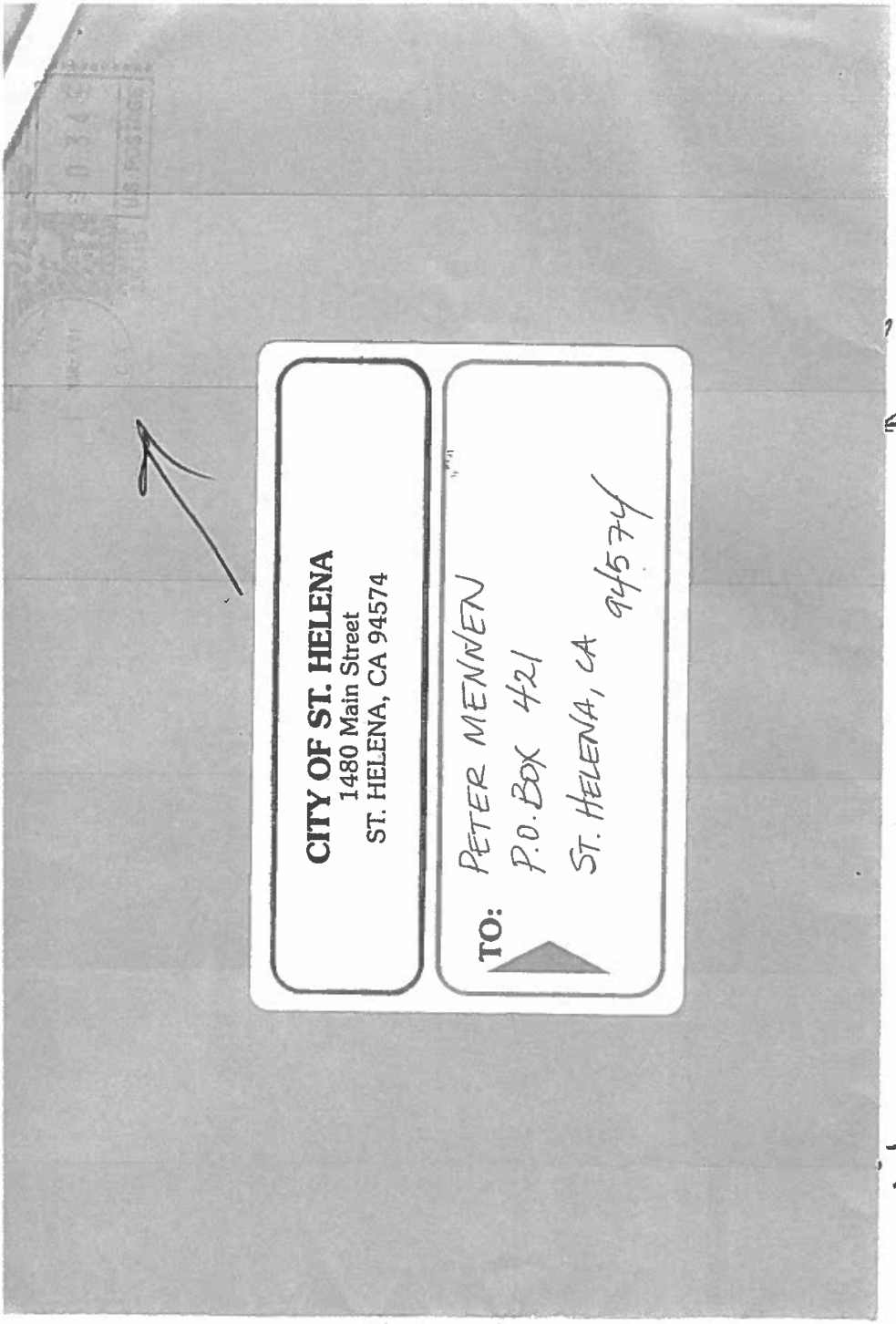
V. ADJOURNMENT

The next Regular City Council meeting is scheduled for March 26, 2002 at 7:00 p.m. in the Carnegie Building. This agenda was posted at City Hall, 1480 Main Street, St. Helena, California, at 3:00 p.m., Friday, March 8, 2002.

Delia Guijosa, City Clerk

001

B3-2



site

erns!

7-8158

5/02 MON 13:59 FAX MALAN 001

Hi Peter,

for 2018 EIR
PM. 12-24-18

B3-2

We went on site
+ had these concerns!

Chris

967-8758

B3-2

Friends of the Napa River
68 Coombs St. Bldg B • Napa, CA 94559
Phone (707) 254-8520 • Fax (707) 254-8547
naperiv@aol.com • www.napanet.net/fonr

February 22, 2002

Myke Praul, City Engineer
City of St. Helena
1480 Main Street
St. Helena, CA 94574

Re: **Napa River Near St. Helena Technical Report for Hydraulic Analysis Results Prepared by: MBK as of November 27. 2001**

Dear Mr. Praul:

Friends of the Napa River would like to comment on the Technical Report by MBK in response to Scoping for an EIR pursuant to CEQA requirements. We appreciate the opportunity to provide early information through the public process to a Measure A project that must comply with the ***'Living River Guidelines'*** approved by the voters of Napa County.

The Technical Report lists three different plans to the St. Helena Flood Control project:
A. The "Non-Structural Plan" (NSP)
B. The "Minimum Plan" (MP)
C. The "Enhanced Minimum Plan" (EMP)
D. The "Maximum Plan" (MxP)

Friends of the Napa River have serious concerns and many questions with the plans B, C and D. We find the "Non-Structural Plan" the least intrusive and most in line with the 'Living River Guide Lines.'

To better understand the implications of the other plans, we would like the following questions answered and documents provided for public review:

1. The massive excavations of plans MP and MxP will create islands in the Napa River riparian corridor. Questions:
    a. Is this compliant with the 'Living River Guidelines'?
    b. How many native Valley Oak trees will be lost?
    c. How much riparian vegetation will be removed from the banks and the bed of the Napa River? What is the re-vegetation plan? What is the maintenance cost?
    d. How much erosion will occur in tons/year?
    e. What will this do to anadromous spawning gravel down stream?
    f. How will this change the bank and channel of the Napa River?

B3-2

g. What are the upstream and downstream erosion effects?
h. How will the loss of riparian vegetation and riparian function effect temperature in the Napa River?
i. How high will the temperatures get in the Napa River during the hot summer months due to loss of riparian vegetation?
j. When is it expected that the riparian cover is recovered / rebuild?

2. The initial excavations in plans MP and MxP seem to be enormous. Questions:
   a. What is the number of cubic yards (or tons) of excavation material?
   b. What is the destination of the spoil/other material resulting from excavation?
   c. Will the City of St. Helena be creating new housing locations with the excavated material and cane Measure A money be used for this?
   d. Would such new housing locations be growth inducing?

3. There will be cut down areas in the riparian zone (called flood terraces). Questions:
   a. How much aggradation will occur in the new excavated area?
   b. How many tons per year of sediment excavation/maintenance will need to be done?
   c. Where will the maintenance spoils/sediment be disposed?
   d. How will new riparian vegetation be protected in this area?
   e. What are the maintenance costs associated with this?

4. Could you provide the public with a map that shows the existing flood plain and the existing floodway?

5. What will the increased stream velocity be in the Pope Street Area?

6. In MP and MxP, steep bank formation will be creating a step-function. Questions:
   a. What is the associated erosion factor to this change in banks of the Napa River?
   b. What are the costs of maintenance of these banks and where will the money come from when Measure A money sunsets?
   c. Is this compliant with Measure A 'Living River Guidelines'?

7. What is the upstream flooding impact of the proposed Adams street extension and causeway?

8. Please detail the effects any of the plans would have on Sulphur Creek.

Sincerely

Bernhard Krevet
President, Friends of the Napa River

Fri, Jan 8, 1904 9:10 AM

B3-2

From: Big Ricki <bigricki@earthlink.net>
Date: Friday, January 8, 1904 9:09 AM
Subject: Flood control Technical Report

for 2018 EIR

PM 12-24-18

Peter Mennen
PO Box 421
St. Helena CA
94574
March 15, 2002

Mike Praul, City Engineer
City of St. Helena
1480 main Street
St. Helena CA 94574

Dear Mr. Praul:

I was one of those selected to participate in the proposed design of a flood control project to be carried out using "Measure A" money that would reduce the impact of flooding on the community of St. Helena. As a bit of history, Measure A was passed by the voters of Napa County as a method of achieving flood control in ways that would be considerate of the biological integrity of the Napa River, as opposed to a flood control design proposed by the Army Corps of Engineers, which was rejected by the citizens of Napa County because it was destructive to river values.

A county-wide community group which named itself "Friends of the Napa River" pulled together and began an extraordinary effort to rethink the way in which flood control could be designed so that the Napa River would benefit from sophisticated flood control methods that would help the river regain some of its former behavior in the days before we hedged it in and destroyed its ability to spread out into a flood plain during heavy rain events. This would be done in ways sensitive to the ecological values of Napa River. This Measure A funding came to pass by a two thirds vote of the county because of the incredible work Friends of the Napa River did to educate county citizens of the way in which flood control could be handled in ways that would improve the beauty and functionality of Napa River, which as you know has been declarted an impaired waterway by Congress, due to the many damaging alterations we have wreaked upon the river in the past hundred years.

I was selected to as a participant in the St. Helena process to represent the vision of Friends of Napa River, to assure the local plan would incorporate the "Living River" standards for flood control that were integral to any project that would be put forward. After all, a river-friendly design was the whole impetus for Friends of the Napa River to do the extraordinary work that made measure A come to pass.

Regrettably, I found myself marginalized as the planning process went on, and I can recall at least one specific incident where I was told the concept of retaining a tree-lined riparian corridor along the river bank would be an impossible, and then later I learned this devestating concept was built into the design with the justification that, since I had not objected to it, Friends of the River must think it was okay. Toward the end, i was not even notified of upcoming meetings of the St. Helena flood design group, much less invited to participate in the role of a "Friends of the Napa River" advisor. I only learned after the fact that a recent meeting had taken place, when someone questioned me about why I was no longer attending.

Finally, after the committee agreed upon a proposed design without even an opportunity for "Friends of the Napa River" to have me participating in the proposal that went forward to the city, you were kind enough to give me a copy of the plan. I sent that copy to "Friends of the Napa River," who made the attached comments and sent thaem back to you on February 22, 2002. I am writing this letter just so that I can have some input into the process now, having been excluded in a manner I believe is illegal, and thus depriving "Friends of the Napa River" to have any legitimate input, or even an

3-15-02

Fri, Jan 8, 1904 9:10 AM

B3-2

opportunity to review, the proposal before it was submitted to the St. Helena City Council. Since I was selected as an official member of the committee, specifically to represent the interests of the "Living River" concept that drove the passage of measure A in the first place, this whole process strikes me as bogus.

And not surprisingly, the fundamental design vision of all the possible proposals for flood reduction in St. Helena is antithetical to any kind of "Living River" vision. In each of the possible projects, the riparian corridor along the river is utterly sacrificed, destroying any number of critical aspects of the living river vision. There are many mature and even landmark-sized, "heritage" trees within St. Helena city limits along the Napa River which, I am only now told, will be deliberately left in a narrow, eroding ridge between the current rivercourse and a new floodplain beyond the existing riparian corridor. I am informed that it is understood and expected that the entire riparian stand along both banks of the Napa River within St. Helena city limits will be destroyed over a short period of time as the river cuts into the banks and causes all those trees to come crashing down, leaving nothing of their shade protection for the river all along both banks of the river. In their place will be a great, vacant swath of little or no biological value, at a terrible price to the river. This is a mockery of the real measure A, which was to enhance the river's values as a part of flood control, not destroy them.

Also, a multitude of other benefits, beyond the loss of all their beauty to all of us citizens, will be lost. Many of those trees are mature oaks, whose wildlife value cannot be overestimated. they are the lynch-pin of biological integrity along the river, and most of them beyond the river bank already have been lost to human development. To deliberately destroy these last precious corridors of mature oaks and complex vegetation is intolerable and unacceptable. It is in direct defiance of the driving concept of Measure A. It makes our plan a farce. Just for your improved understanding of the value of oaks, I am including a copy of an excellent book on the complexity and value of oak trees entitled "The Life of an Oak." It was produced by the California Oak Foundation, with major funding from, among others, the Mennen Environmental Foundation. Perhaps you and others will gain some perspective on what you are attempting to throw away.

Measure A was not passed so that a few interest groups in Napa County could benefit at the expense of tremendous tax costs to the rest of us and the sacrifice of the Napa River. It was not put forward so that local politicians could make a lot of hay on its back by corraling a clot of special interest votes and make self-serving claims on campaign literature when they ran for larger office. Measure A had far loftier goals of spending our tax money to benefit both people and the Napa River, and that is the Initiative we as a county passed. St. Helena's Measure A oversight committee has unconscionably distorted the very heart of the "lving river" intent of the measure whose county tax money they (we?) were expected to spend in an appropriate way.

The Mennen Environmental Foundation has purchased acreage on Sulphur Creek to restore in a manner that will benefit flood control and biological values. Our expert evaluators have proposed solutions that are diametrically opposed to the proposal being forwarded to the City of St. Helena by the oversight committee. I absolutely wash my hands of the disgraceful and shameful set of proposals that "my" committee has certified for your consideration and acceptance. I am appalled. I am certain Friends of the Napa River would not touch these proposals with a ten foot pole. They are a joke- a slap in the face to everyone who put his/her heart and soul into bringing Measure A to fruition.

Sincerely,

P.M. Peter Mennen

Peter Mennen

CCs: Friends of the Napa River
St. Helena City Council

Note dated march 25, 2002. There is an inaccurate statement in the above letter, which I did not catch because I did not proofread the letter before running it over to the City shortly before City hall closed for the night on 3/15/02. In the above letter, I should have said I was told during a meeting of the oversight committee that it would not be appropriate to plant shrubbery in the riparian

B3-2

Friends of the Napa River

The Landmarks Building
1026 First Street • Napa, CA 94559
Phone (707) 255-8646 • Fax (707) 255-2164

10/5/97

For 2018 EIR
PM. 12-24-18

St. Helena Planning Commission
St. Helena, CA 94574

RE: Napa River Bridge Alternatives

Dear Commissioners:

Friends of the Napa River, as you know, is concerned that community action today safeguard the long-term health of the Napa River. Specifically, we are concerned that the placement of the new Pope Street bridge to cross the Napa River will have significant impacts on river stability and of great concern to St. Helena's dense build-out along the river, have an impact on flooding. We acknowledge the need for a new bridge and perhaps the impacts will only be positive, but it is better to ask the questions now rather than later.

The Alternative A is of particular concern as the abutment for the West side of the bridge is in the floodway of the Napa River, possibly backing the water up in an area where there are many variables to consider, not the least of which is residential. The abutment on the West side sits on Stonebridge Park, a park that carries flood waters at times. Placing a cement dam there would force water elsewhere. The bridge would have to be longer with a causeway to allow the passage for that water in an area that seems ill suited for it.

Alternative A has other problems associated with the troubled area it would be placed into: that is the confluence of Sulphur Creek and the Napa River, and upstream from the historic Pope Street Bridge that is a constriction in the river. It is not yet known what the cumulative effect of the increased flow and velocity of the stormwater runoff from the new developments along Sulphur Creek is going to be during heavy rains.

We have briefly consulted an hydraulic engineer who has done a complete computer analysis of the Napa River at that very point and would be able to plug in the variables to make sure Alternative A would not have the problems it does appear to have and to compare them with the other alternatives. He suggested that bridges have backflow problems that have to be considered carefully. We have learned in our education about river systems that you can not tell how things are until the numbers are run. On page 19 of your report you suggest the hydraulic scour evaluation would be conducted during the final design phase of the project. Suppose at that time the numbers don't come out well for Alternative A? Why not do the modeling now so the citizens can see what the options are and rest assured there will be no additional flooding or scouring problems with any of the alternatives? This would allow them to support a more informed decision.

We are enclosing the name and address of the engineer who has the computer model of this stretch of the river.

Respectfully submitted,

Dear Peter -
Please call me
Num # 258-8762
[illegible]

Friends of the Napa River

Address of Philip Williams & Associates
c/o Vince Neary, Pier 35-The Embarcadero
San Francisco, CA 94133

Comment Letter B4-A

City of St Helena, City Hall
Received
DEC 27 2018
1480 Main St.
St Helena, CA 94574

December 27, 2018

Noah Housh, Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

Re: Draft Environmental Impact Report Chapter 3.7-1 and 3.8-1

Dear Noah,

B4-A-1

My commendations on excellent maps in the sections above. However, some of the information is not current, such as the USGS Fact Sheet relied on from 2000 has been replaced by the USGS Fact Sheet from December 2014. These areas should be re-written to reflect current statistics and realities. A copy of the 2014 Fact Sheet with predictions is enclosed.

B4-A-2

If the drafters of the EIR would like to consult further on seismic and fault issues related to West Napa Fault, the two authorities are Belle Philibosian, Research Geologist of the Earthquake Science Center who is actively involved in pit studies of the West Napa Fault from St. Helena to beyond Calistoga. Belle can be reached at 650-329-4784 or by cell phone at 626-344-9159. Belle's e-mail address is bphilibosian@usgs.gov. The State Geological expert studying the West Napa Fault who has also traced with USGS its presence running through St. Helena and Calistoga to a length of 45 miles is Professor Michael Oskin, Chairman of the Department of Geology, U.C. Davis. Dr. Oskin also served the USGS and provided a map attached from December 2014 that shows seismic activity running the length of the valley on the "west" side of Hwy. 29. In other words, the fault does not stop at the south border of St. Helena and there are several published sources I've provided verifying this. There are also visible fault damaged areas from the 2014 Napa earthquake.

B4-A-3

A website that should be viewed by the preparers of the draft EIR is easily found using google. Enter "Hayward Fault Shake Map" where three "break points" are given showing magnification of damage from a 7.0 quake along that fault. If the fault breaks in Fremont or Oakland, St. Helena is in for a greater than 8.0 quake. So please take this seriously, since the probabilities are so high of one or more events of 6.7 or greater (72%) than noted in the

current draft EIR with its outdated materials. Again, I've attached information about this.

B4-A-3

The characterization made that St. Helena has less problems, otherwise there would be an Alquist-Priolo Map is inaccurate. The State Geological Survey is years behind and under-funded, thus the State's Gegological Survey group selects studies based on population densities. This can be verified by Richard who handles maps for California Geological Survey in Menlo Park. Since Yountville, St. Helena and Calistoga are smaller and more rural than Napa, the CGS focus was American Canyon and Napa, and there were no funds and less priority for the State to complete maps for the upper part of the valley due to smaller populations compared to many other areas of the state waiting in line for updated Alquist-Priolo Maps. As CGS told the press ("San Francisco Chronicle"), we have a 300 year backlog given the meager funding provided for development of Alquist-Priolo Maps."

B4-A-4

I don't believe the stark probabilities of a problem from a break in the West Napa Fault should be hidden from view. Burying one's head in the sand leaves people victims of their own city personnel's biases that are not founded on reality.

B4-A-5

The drafters of the EIR should also include in their references the State Guidelines for Seismically Active Area from 2008: "Special Publication 117A" and update their descriptions and systems as well, based on this Publication. I am sorry to see the EIR writers are so far removed from updating their records, relying on 2000 data for the most part from both the USGS and State GS. I provided you with a copy of this Publication for use by residents. Perhaps you can share it with the EIR preparers so they can update this chapter.

B4-A-6

I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is described as Seismically Active, I believe a description should include this reality.

B4-A-7

Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is a firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards. As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern are ornamental fire walls like the one at Hall Winery on the second floor in their tasting room.

B4-A-8

B4-A-9

Thank you for this opportunity to comment.

Sincerely,

Lois Ann Battuello

Lois Ann Battuello

Enclosures - USGS updates and seismic facts from historic reports

CC: Paul Dohring, Council
Mary Koberstein, Council

B4-A-10

https://earthquake.usgs.gov/learn/topics/shakingsimulations/hayward/M7.0.php

Earthquake "Shake" Map for breaks on the Hayward Fault - 3 scenarios of shaking intensities for a 7.0 M quake - San Pablo Bay (almost no affect on Napa County), Oakland (serious affect on Napa County), and Fremont (extreme shaking and most serious affect on Napa County).

In the foregoing scenarios, note that the location furthest away, Fremont, would produce the most damage in Napa County. This is similar to the effect of the quake in 2017 in Mexico city, where the origin was 65 miles from Mexico City but the shaking and magnitude of the quake increased and was most severe in Mexico City.

Another way to get to Hayward Fault info: Use Google.com, type in Hayward Fault Shake Map and there's as USGS link on the index that is generated.

B4-A-10

AN ANALYSIS OF BAY AREA EARTHQUAKES AND USGS FORECASTS

The USGS has been accurate in its 30-year forecasts, as there has been at least one 6.0 M quake or greater within their set timeframe since 1959. Prior to that, there was only one quake just under 6.0 M from 1906 forward. This information is from the "List of Earthquakes in California" (Google the term and look for the Wiki link) and historic USGS forecasts (Google "Earthquake Outlook for San Francisco Bay Region 2014-2043).

Each time there is a 6.0 or greater quake, a new 30-year forecast has been made by USGS. Here are the differences since Napa's 8/24/14 earthquake:

(1) Probabilities have moved from 72% to 98% for a quake of 6.0 M or greater for the first time. Before: Probabilities were 72% or 70%

(2) USGS in 2014 increased the probabilities to include one "or more" events as shown in their Earthquake Outlook for the first time

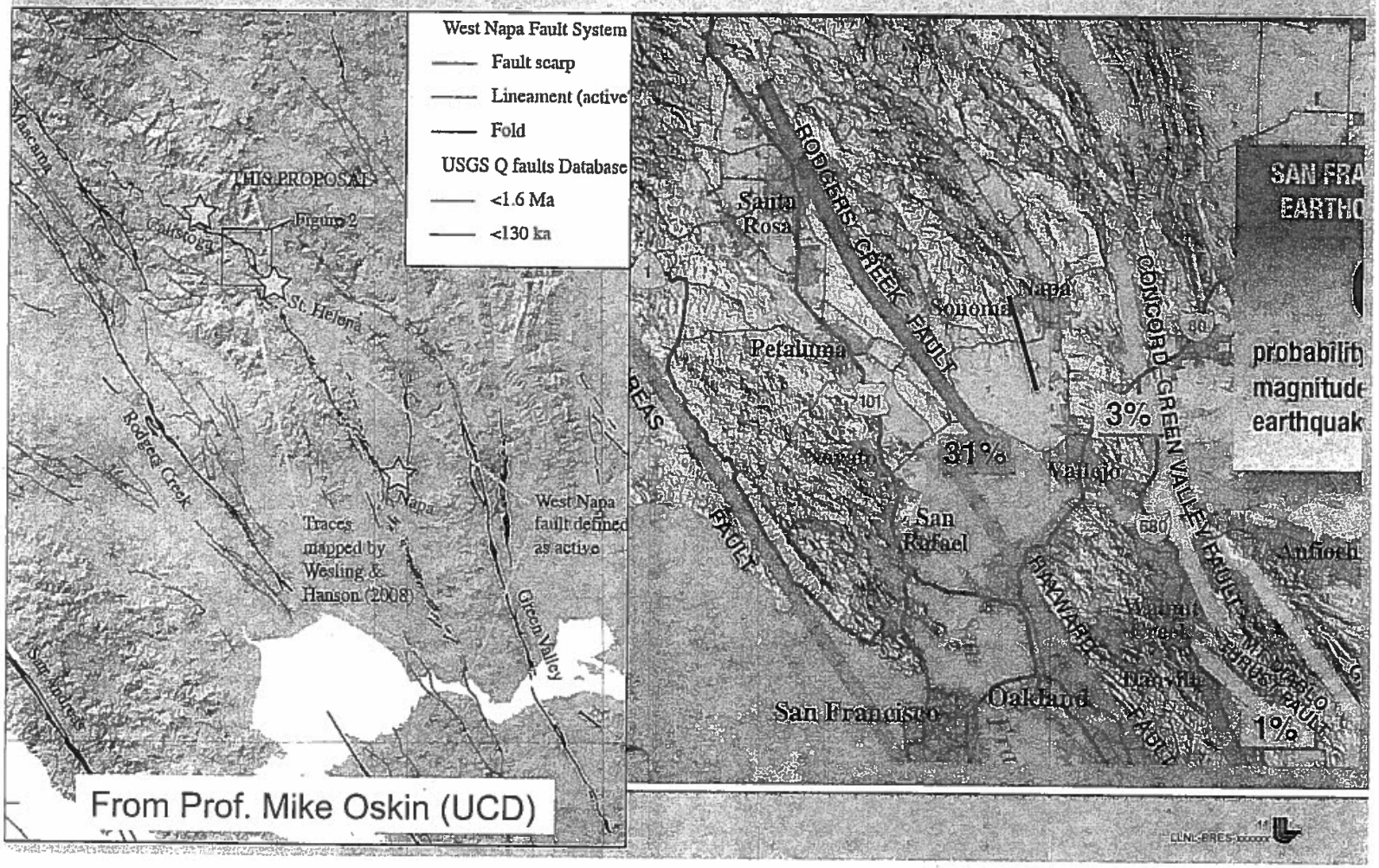
(3) USGS now adds the 72% probability of a 6.7 M or greater. This is the first time there has been a forecast probability for a 6.7 M or greater event.

All of this is new data since the Napa Earthquake of 8/24/14. The West Napa Fault erupted for the first time in 11,000 years to 45 miles in length.

We are more seismically active, as faults are building pressure, and are occurring within shorter time-frames. Hence the probability is 98%.

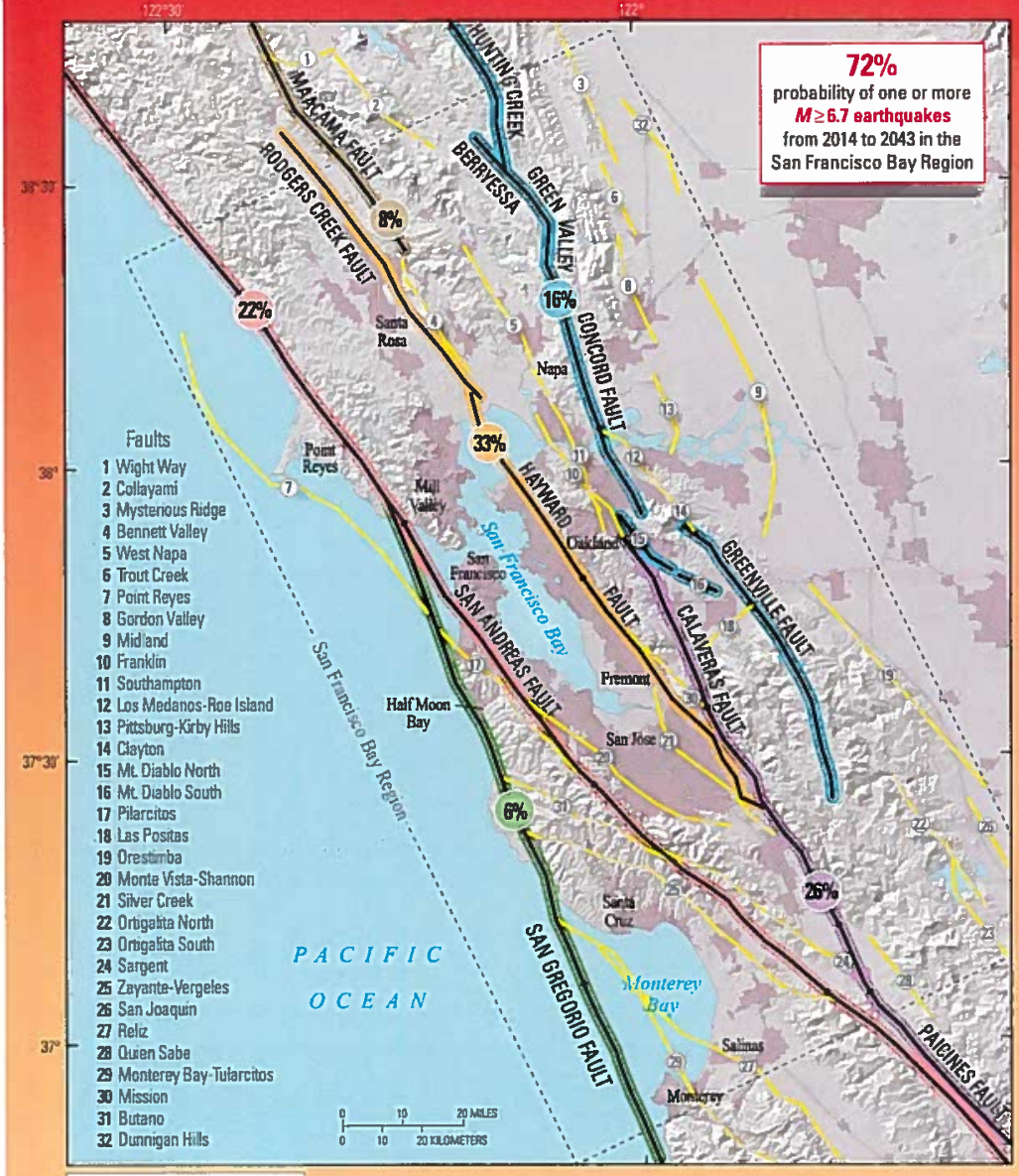
Since 1868, there have been four major earthquakes in San Francisco and the North/East Bay Area that have been felt in Napa: 1868 Hayward; 1906 San Francisco; 1989 Loma Prieta; 2014 West Napa. Three of the four occurred at night when people were in their beds between 1:20 a.m. and 5:19 a.m. Loma Prieta broke at approximately 5:00 p.m. Three of the four occurred just before or just after the Fall Equinox (Sept.). Only the San Francisco Earthquake of 1906 occurred just weeks after the Spring Equinox (Mar.) on April 18, 1906.

The West Napa Fault was identified as active, capable of M 6 event



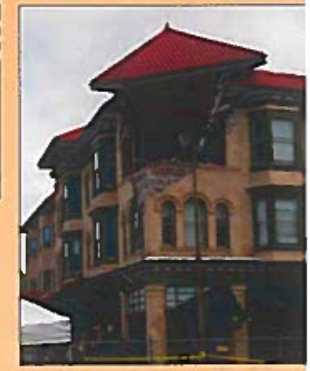
USGS
science for a changing world

Earthquake Outlook for the San Francisco Bay Region 2014–2043



Map of known active faults in the San Francisco Bay region. The 72 percent probability of a magnitude 6.7 or greater earthquake includes the well-known major plate-boundary faults, lesser-known faults, and unknown faults. The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043. The probability that a magnitude 6.7 or greater earthquake will involve one of the lesser-known faults is 13 percent.

Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California. They concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043. Earthquakes this large are capable of causing widespread damage; therefore, communities in the region should take simple steps to help reduce injuries, damage, and disruption, as well as accelerate recovery from these earthquakes.

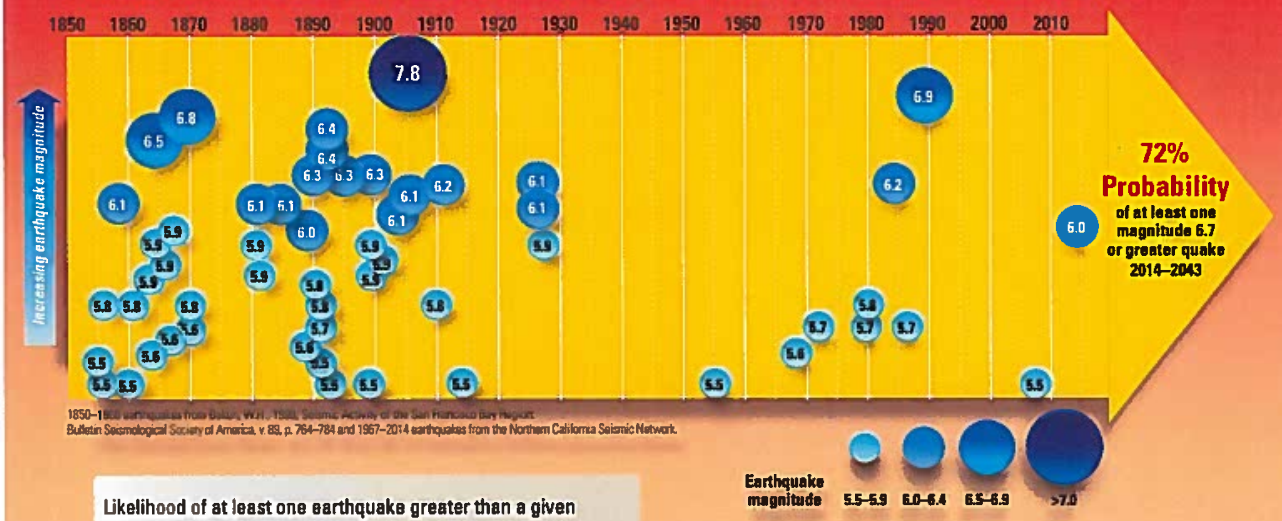


Building damaged in 2014 South Napa earthquake. Photograph by Erol Kalkan, U.S. Geological Survey.

U.S. Department of the Interior
U.S. Geological Survey

Fact Sheet 2015–3020
Revised August 2016 (ver. 1.1)

San Francisco Bay Region Earthquake Timeline



1850–1[illegible] earthquakes from Bolen, W.H., 1[illegible], Seismic Activity of the San Francisco Bay Region: Bulletin Seismological Society of America, v. 89, p. 764–784 and 1967–2014 earthquakes from the Northern California Seismic Network.

Likelihood of at least one earthquake greater than a given magnitude in the San Francisco Bay region between 2014 and 2043.

Magnitude (*M*)	30-year likelihood of at least one earthquake in the San Francisco Bay region
$M \geq 6.0$	98 percent
$M \geq 6.7$	72 percent
$M \geq 7.0$	51 percent
$M \geq 7.5$	20 percent

Timeline of magnitude 5.5 and greater earthquakes in the San Francisco Bay region 1850–2014. In the 50 years prior to 1906, there were 13 earthquakes with a magnitude between 6 and 7, but only 6 earthquakes of similar magnitude in the 110 years since 1906. The rate of large earthquakes is expected to increase from this low level as tectonic plate movements continue to increase the stress on the faults in the region.

Earthquake Preparedness Helps

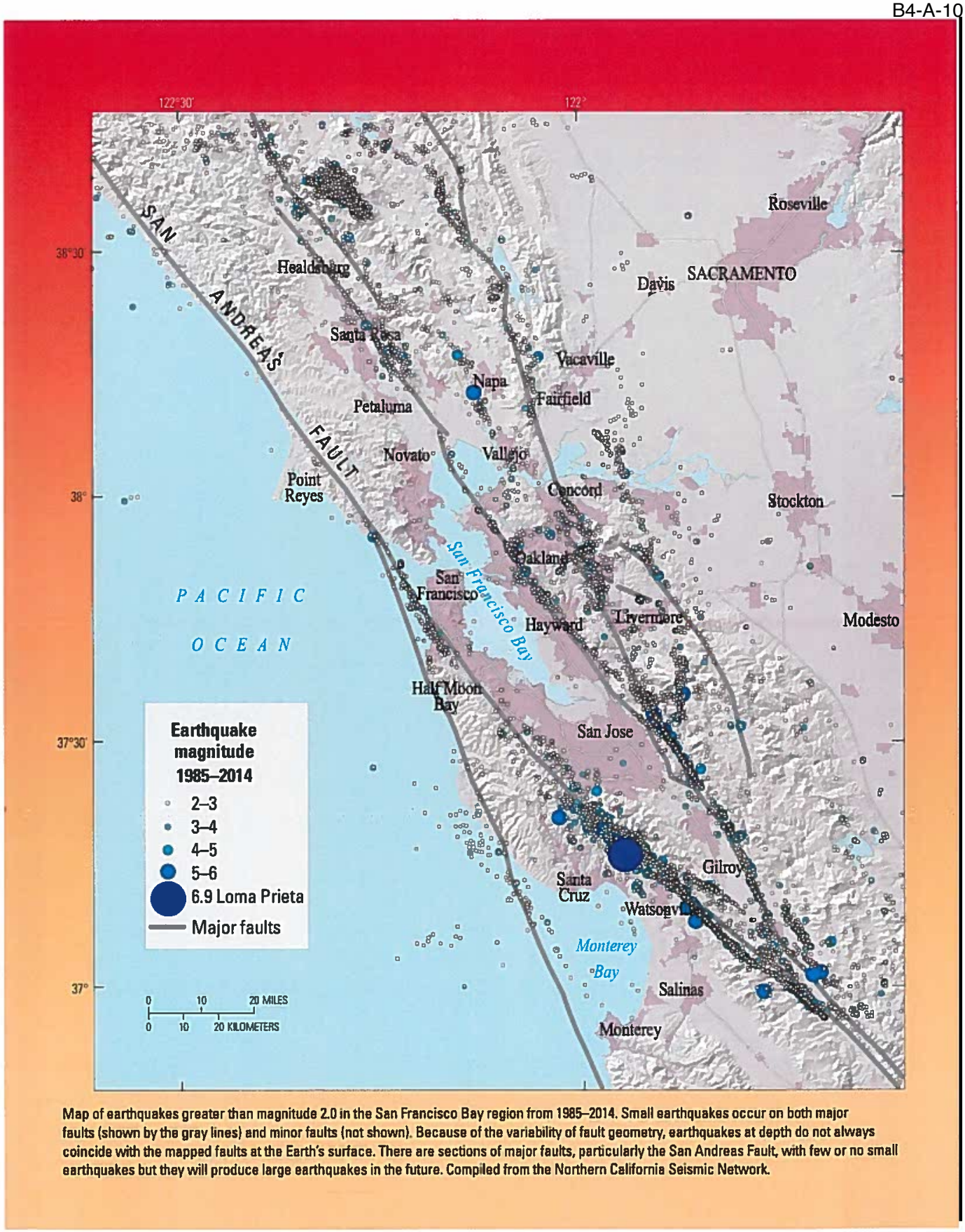
Early Sunday morning on August 24, 2014, the residents of Napa, California, were jolted awake by a strong, magnitude 6.0 earthquake. Within 30 minutes, the staff of Becoming Independent, a non-profit organization that helps adults with intellectual disabilities lead independent lives, called the people they serve in the affected area. The staff quickly visited all of the clients that needed help with cleanup and making their homes safe, a task made easier because both groups were trained in disaster preparedness and the clients had emergency kits with needed supplies on hand. The South Napa earthquake shifted houses off their foundations, damaged chimneys, started fires, and broke water mains throughout the city, causing hundreds of millions of dollars in economic losses. Many historic masonry buildings in downtown Napa were damaged. The earthquake was the largest in the San Francisco Bay region since the 1989 magnitude 6.9 Loma Prieta earthquake and a clear reminder of the seismic vulnerability of the region. The staff and clients of Becoming Independent showed that understanding and preparing for these events can improve how we live with future earthquakes.

Why Does the San Francisco Bay Region Have Earthquakes?

The same geologic process that is responsible for the San Francisco Bay region's beautiful coastlines, bays, hills, and valleys is also the primary driving force for earthquakes along faults in the region. The Bay region is located within the active boundary between the Pacific and the North American tectonic plates, where the Pacific plate slowly and continually slides northwest past the North American plate. The San Andreas Fault, on which two magnitude 7.8–7.9 earthquakes have occurred in historical time, including the 1906 San Francisco earthquake, is the fastest slipping fault along the plate boundary. Other major plate boundary faults in the San Francisco Bay region include the Hayward, Rodgers Creek, Calaveras, Maacama, San Gregorio, Concord, Green Valley, and Greenville Faults.

How Do Scientists Calculate Earthquake Probability?

Scientists rely upon a variety of techniques to help understand the rate and magnitude of past earthquakes in order to estimate the likelihood of future earthquakes. The Global Positioning System (GPS) and other land surveying and geologic techniques have allowed scientists to make more accurate measurements of how the current plate motions—totaling 1.6 inches per year across the San Francisco Bay region—distribute stress onto these individual faults. Balancing plate motions with the slip during large earthquakes and slow creep on faults allows scientists to calculate average rates of earthquake occurrence over periods of hundreds to thousands of years. (Continued on page 4)



Map of earthquakes greater than magnitude 2.0 in the San Francisco Bay region from 1985–2014. Small earthquakes occur on both major faults (shown by the gray lines) and minor faults (not shown). Because of the variability of fault geometry, earthquakes at depth do not always coincide with the mapped faults at the Earth's surface. There are sections of major faults, particularly the San Andreas Fault, with few or no small earthquakes but they will produce large earthquakes in the future. Compiled from the Northern California Seismic Network.

(Continued from page 2). A trench excavated across the Hayward Fault in Fremont revealed evidence of 12 large earthquakes over the past 1,900 years. The time interval between these earthquakes ranged from about 100 to 210 years. Historical records indicate that the most recent large earthquake on this fault occurred in 1868. However, detailed information about other past earthquakes in the San Francisco Bay region is difficult to obtain because seismograph records only go back to about 1900, historical accounts are sparse before 1850, and there are limited locations where faults can be trenched to identify and date prehistoric earthquakes.

Calculating accurate earthquake probabilities for short periods, such as 30 years, is also challenging. Although the 30-year time interval is convenient for humans, it is much less than the average time between large earthquakes on these faults, which can range from hundreds to thousands of years. The rate of large earthquakes in the San Francisco Bay region was high in the late 1800s but dropped abruptly after the 1906 San Francisco earthquake on the San Andreas Fault. Scientists believe that the post-1906 earthquake rate decreased because the large amount of slip along the San Andreas Fault in 1906 temporarily reduced the stress on many of the faults in the region. However, the ongoing motion of the tectonic plates began rebuilding stresses after the 1906 event, and earthquakes larger than magnitude 5.5 resumed during the second half of the 20th century. Future large, damaging earthquakes in the San Francisco Bay region, similar in size to the 1989 Loma Prieta and 1906 San Francisco earthquakes, may or may not be accompanied by the level of earthquake activity observed in the late 1800s.

The 2014 Uniform California Earthquake Rupture Forecast version 3 (http://pubs.usgs.gov/fs/2015/3009/) provides an updated estimate of the likelihood of large earthquakes in California over a 30-year time window from 2014 to 2043. The forecast accounts for how fast stress is accumulating on each fault due to plate motions and the time since its most recent large earthquake(s). In updating the probability calculations, scientists used a more complete set of faults for the San Francisco Bay region than those used in the previous (2008) calculations, adding 32 smaller faults to the 5 major fault systems. The new study has also incorporated more options for how multiple faults might rupture together in large earthquakes.

Probabilities of Earthquakes in the San Francisco Bay Region

Smaller earthquakes occur more frequently than larger earthquakes. The probability that an earthquake of magnitude 6.0 or larger will occur before 2043 is 98 percent. The probability of at least one earthquake of magnitude 6.7 or larger in the San Francisco Bay region is 72 percent, and for at least one earthquake of magnitude 7.0 or larger it is 51 percent. These probabilities include earthquakes on the major faults, lesser-known faults, and unknown faults.

The probability of a large earthquake occurring on an individual fault in the San Francisco region is lower than the probability of an earthquake occurring anywhere in the region. The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward, Rodgers Creek, Calaveras, and San Andreas Faults. In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward or Rodgers Creek Faults. Individual sections of these faults have lower probabilities for large earthquakes to occur (continued on page 6);

Seven Steps to Earthquake Safety

PREPARE

Before the next big earthquake we recommend these four steps that will make you, your family, or your workplace better prepared to survive and recover quickly:

Step 1: Secure your space by identifying hazards and securing moveable items.

Step 2: Plan to be safe by creating a disaster plan and deciding how you will communicate in an emergency.

Step 3: Organize disaster supplies in convenient locations.

Step 4: Minimize financial hardship by organizing important documents, strengthening your property, and considering insurance.

SURVIVE

During the next big earthquake, and immediately after, is when your level of preparedness will make a difference in how you and others survive and can respond to emergencies:

Step 5: Drop, Cover, and Hold On when the earth shakes.

Step 6: Improve safety after earthquakes by evacuating if necessary, helping the injured, and preventing further injuries or damage.

RECOVER

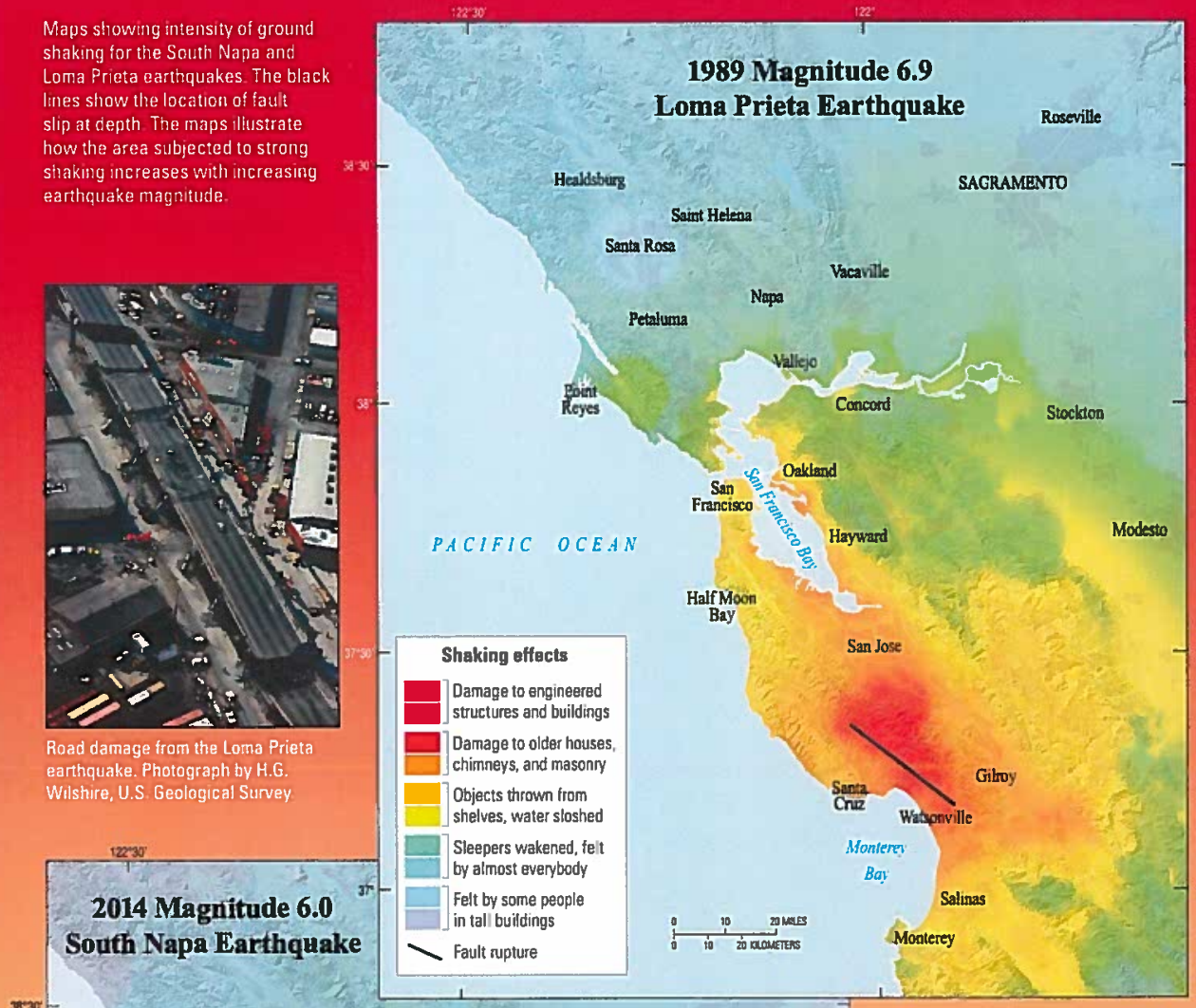
After the immediate threat of the earthquake has passed, your level of preparedness will determine your quality of life in the weeks and months that follow:

Step 7: Reconnect and Restore. Restore daily life by reconnecting with others, repairing damage, and rebuilding community.

Adapted from Seven Steps To Earthquake Safety
http://earthquakecountry.org/sevensteps/

Maps showing intensity of ground shaking for the South Napa and Loma Prieta earthquakes. The black lines show the location of fault slip at depth. The maps illustrate how the area subjected to strong shaking increases with increasing earthquake magnitude.

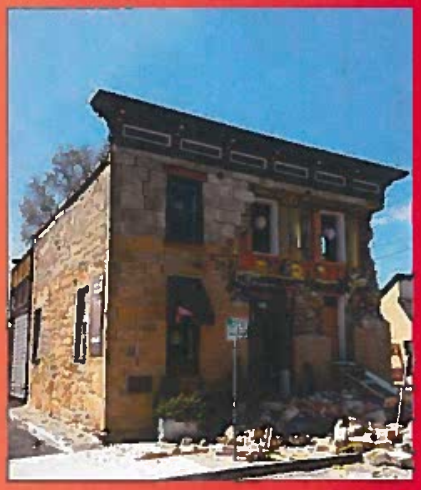
Road damage from the Loma Prieta earthquake. Photograph by H.G. Wilshire, U.S. Geological Survey.



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

Additional Earthquake Resources

American Red Cross – Bay Area (http://www.redcross.org/local/northern-california-coastal)
Association of Bay Area Governments (http://resilience.abag.ca.gov/earthquakes/)
Bay Area Earthquake Alliance (http://bayquakealliance.org/)
California Earthquake Authority (http://www.californiarocks.com/)
California Geological Survey
(http://www.consrv.ca.gov/cgs/geologic_hazards/earthquakes)
Did You Feel It? (http://earthquake.usgs.gov/earthquakes/dyfi/)
Earthquake Country Alliance (http://earthquakecountry.org/)
Putting Down Roots in Earthquake Country (http://pubs.usgs.gov/gip/2005/15/)
ShakeAlert – An Earthquake Early Warning System for the United States West Coast
(http://pubs.usgs.gov/fs/2014/3083/)
ShakeMap (http://www.cisn.org/shakemap/nc/shake/index.html)
ShakeOut.org (http://www.shakeout.org/california/bayarea/)
Uniform California Earthquake Rupture Fault version 3 Fact Sheet
(http://pubs.usgs.gov/fs/2015/3009/)
United Policyholders (http://www.uphelp.org/)
USGS Real-Time Earthquakes (http://earthquake.usgs.gov/earthquakes/map/)



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

(continued from page 5) however, an earthquake of magnitude 6.7 or larger will cause strong shaking over a broad area. Therefore, it is important to estimate the probability of a large earthquake occurring anywhere in the San Francisco Bay region.

What is the Likelihood That an Earthquake Will Affect You?

Earthquake probabilities are only one component in the evaluation of earthquake hazards. Higher magnitude earthquakes have broader areas of intense shaking and cause more damage than lower magnitude earthquakes. In a magnitude 6.0 earthquake, strong shaking and damage are confined to a localized area, as illustrated by the 2014 South Napa earthquake. In comparison, the 1989 magnitude 6.9 Loma Prieta earthquake caused damage over a region nearly 100 miles long. Local soil and geologic conditions, bedrock type, quality of building construction, and susceptibility to flooding (caused by dam or levee failure) can also affect the amount of damage at a particular site. This was dramatically demonstrated by the 1989 Loma Prieta earthquake, which devastated vulnerable parts of Oakland and San Francisco, more than 50 miles from the fault rupture.

How Can You Protect Yourself and Your Family?

Taking simple steps before and during earthquakes can help protect you and your family, as well as speed your recovery from an earthquake.

Before the next earthquake:

- Assess your home and work space, identify hazards, and secure moveable items.
- Create an emergency plan and organize disaster supplies to sustain you and your family for 72 hours or longer.
- Practice "Drop, Cover, and Hold On" to protect yourself when the ground begins to shake. Learn and practice what to do at home, work, or in school.
- Stay prepared by repeating these steps on a regular basis. For example, reassess your preparedness every year and participate in the annual Great California ShakeOut drill on the third Thursday in October.

Lack of adequate shear walls on the garage level exacerbated damage to this building at the corner of Beach and Divisadero in the Marina District, San Francisco, during the October 1989 Loma Prieta earthquake.

Brad T. Aagaard, James Luke Blair, John Boatwright, Susan H. Garcia Ruth A. Harris, Andrew J. Michael, David P. Schwartz, and Jeanne S. DiLeo

Edited by *Kate Jacques* and *Carolyn Donlin*

For more information contact:
1-888-ASK-USGS
(1-888-275-8747)

http://earthquake.usgs.gov/
http://ask.usgs.gov
https://www.facebook.com/USGeologicalSurvey
https://twitter.com/USGS

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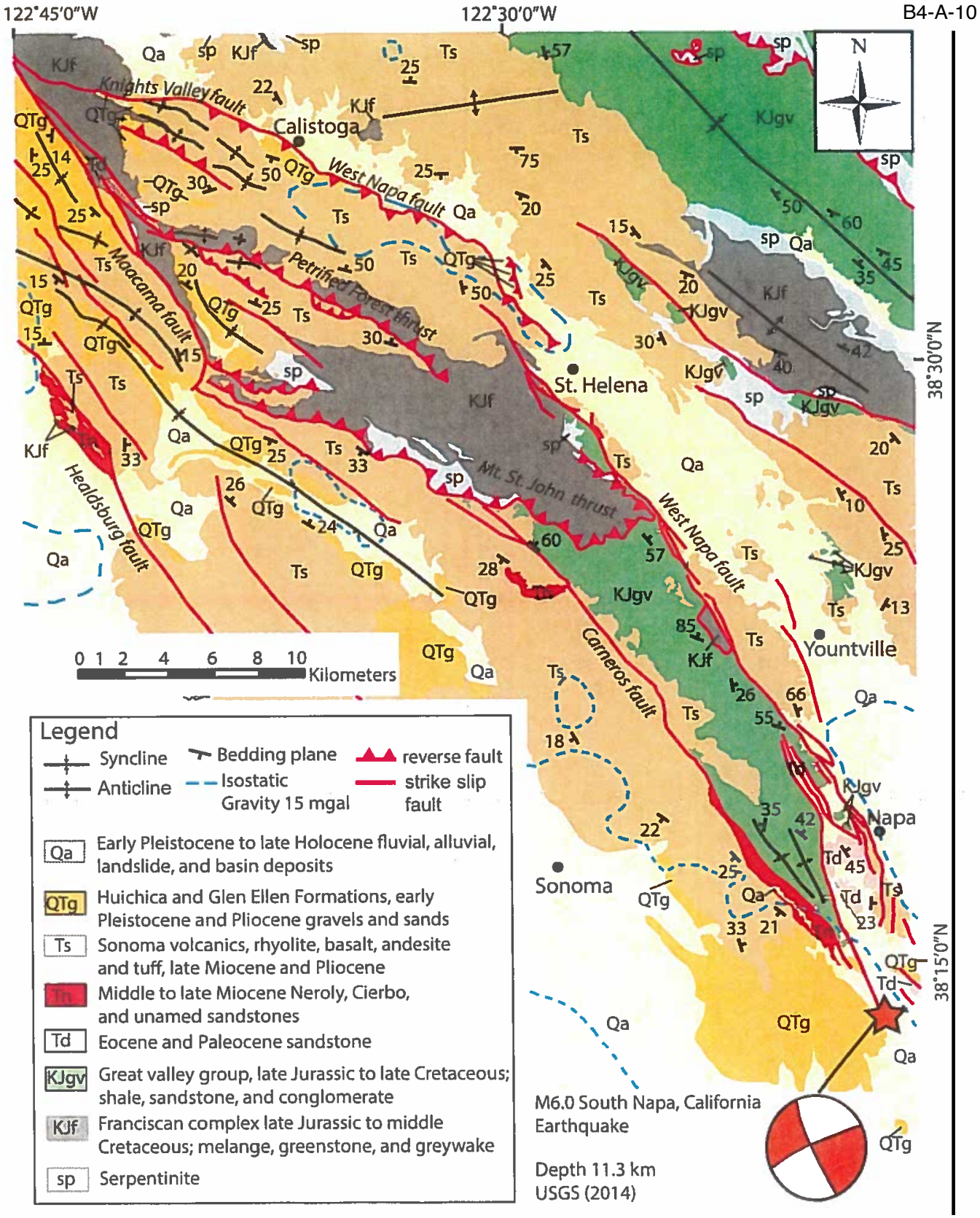

122°45'0"W
122°30'0"W
B4-A-10
38°30'0"N
38°15'0"N
N
Knights Valley fault
Calistoga
West Napa fault
Petrified Forest thrust
Mayacama fault
Healdsburg fault
St. Helena
Mt. St. John thrust
West Napa fault
Carneros fault
Yountville
Napa
Sonoma
0 1 2 4 6 8 10 Kilometers
Legend
Syncline
Anticline
Bedding plane
Isostatic Gravity 15 mgal
reverse fault
strike slip fault
Qa Early Pleistocene to late Holocene fluvial, alluvial, landslide, and basin deposits
QTg Huichica and Glen Ellen Formations, early Pleistocene and Pliocene gravels and sands
Ts Sonoma volcanics, rhyolite, basalt, andesite and tuff, late Miocene and Pliocene
Tn Middle to late Miocene Neroly, Cierbo, and unamed sandstones
Td Eocene and Paleocene sandstone
KJgv Great valley group, late Jurassic to late Cretaceous; shale, sandstone, and conglomerate
KJf Franciscan complex late Jurassic to middle Cretaceous; melange, greenstone, and greywake
sp Serpentinite
M6.0 South Napa, California Earthquake
Depth 11.3 km
USGS (2014)

Comment Letter B4-B

December 27, 2018

City of St Helena, City Hall
Received
DEC 28 2018
1480 Main St.
St Helena, CA 94574

Noah Housh, Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

Re: Draft Environmental Impact Report Chapter 3.7-1 and 3.8-1

Dear Noah,

B4-B-1

My commendations on excellent maps in the sections above. However, some of the information is not current, such as the USGS Fact Sheet relied on from 2000 has been replaced by the USGS Fact Sheet from December 2014. These areas should be re-written to reflect current statistics and realities. A copy of the 2014 Fact Sheet with predictions is enclosed.

B4-B-2

If the drafters of the EIR would like to consult further on seismic and fault issues related to West Napa Fault, the two authorities are Belle Philibosian, Research Geologist of the Earthquake Science Center who is actively involved in pit studies of the West Napa Fault from St. Helena to beyond Calistoga. Belle can be reached at 650-329-4784 or by cell phone at 626-344-9159. Belle's e-mail address is bphilibosian@usgs.gov. The State Geological expert studying the West Napa Fault who has also traced with USGS its presence running through St. Helena and Calistoga to a length of 45 miles is Professor Michael Oskin, Chairman of the Department of Geology, U.C. Davis. Dr. Oskin also served the USGS and provided a map attached from December 2014 that shows seismic activity running the length of the valley on the "west" side of Hwy. 29. In other words, the fault does not stop at the south border of St. Helena and there are several published sources I've provided verifying this. There are also visible fault damaged areas from the 2014 Napa earthquake. It appears on the USGS Map attached reaching the base of Mt. St. Helena.

B4-B-3

A website that should be viewed by the preparers of the draft EIR is easily found using google. Enter "Hayward Fault Shake Map" where three "break points" are given showing magnification of damage from a 7.0 quake along that fault. If the fault breaks in Fremont or Oakland, St. Helena is in for a greater than 8.0 quake. So please take this seriously, since the probabilities

current draft EIR with its outdated materials. Again, I've attached information about this.

B4-B-3

The characterization made that St. Helena has less problems, otherwise there would be an Alquist-Priolo Map is inaccurate. The State Geological Survey is years behind and under-funded, thus the State's Gegological Survey group selects studies based on population densities. This can be verified by Richard who handles maps for California Geological Survey in Menlo Park. Since Yountville, St. Helena and Calistoga are smaller and more rural than Napa, the CGS focus was American Canyon and Napa, and there were no funds and less priority for the State to complete maps for the upper part of the valley due to smaller populations compared to many other areas of the state waiting in line for updated Alquist-Priolo Maps. As CGS told the press ("San Francisco Chronicle"), we have a 300 year backlog given the meager funding provided for development of Alquist-Priolo Maps."

B4-B-4

I don't believe the stark probabilities of a problem from a break in the West Napa Fault should be hidden from view. Burying one's head in the sand leaves people victims of their own city personnel's biases that are not founded on reality.

B4-B-5

The drafters of the EIR should also include in their references the State Guidelines for Seismically Active Area from 2008: "Special Publication 117A" and update their descriptions and systems as well, based on this Publication. I am sorry to see the EIR writers are so far removed from updating their records, relying on 2000 data for the most part from both the USGS and State GS. I provided you with a copy of this Publication for use by residents. Perhaps you can share it with the EIR preparers so they can update this chapter.

B4- B-6

I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is described as Seismically Active, I believe a description should include this reality.

B4-B-7

Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is a firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards. As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern are ornamental fire walls like the one at Hall Winery on the second floor in their tasting room.

B4-B-8

B4-B-9

Thank you for this opportunity to comment.

Sincerely,

Lois Ann Battuello

Lois Ann Battuello

Enclosures - USGS updates and seismic facts from historic reports

CC: Paul Dohring, Council
Mary Koberstein, Council

B4-B-10

https://earthquake.usgs.gov/learn/topics/shakingsimulations/hayward/M7.0.php

Earthquake "Shake" Map for breaks on the Hayward Fault - 3 scenarios of shaking intensities for a 7.0 M quake - San Pablo Bay (almost no affect on Napa County), Oakland (serious affect on Napa County), and Fremont (extreme shaking and most serious affect on Napa County).

In the foregoing scenarios, note that the location furthest away, Fremont, would produce the most damage in Napa County. This is similar to the effect of the quake in 2017 in Mexico city, where the origin was 65 miles from Mexico City but the shaking and magnitude of the quake increased and was most severe in Mexico City.

Another way to get to Hayward Fault info: Use Google.com, type in Hayward Fault Shake Map and there's as USGS link on the index that is generated.

B4-B-10

AN ANALYSIS OF BAY AREA EARTHQUAKES AND USGS FORECASTS

The USGS has been accurate in its 30-year forecasts, as there has been at least one 6.0 M quake or greater within their set timeframe since 1959. Prior to that, there was only one quake just under 6.0 M from 1906 forward. This information is from the "List of Earthquakes in California" (Google the term and look for the Wiki link) and historic USGS forecasts (Google "Earthquake Outlook for San Francisco Bay Region 2014-2043).

Each time there is a 6.0 or greater quake, a new 30-year forecast has been made by USGS. Here are the differences since Napa's 8/24/14 earthquake:

(1) Probabilities have moved from 72% to 98% for a quake of 6.0 M or greater for the first time. Before: Probabilities were 72% or 70%

(2) USGS in 2014 increased the probabilities to include one "or more" events as shown in their Earthquake Outlook for the first time

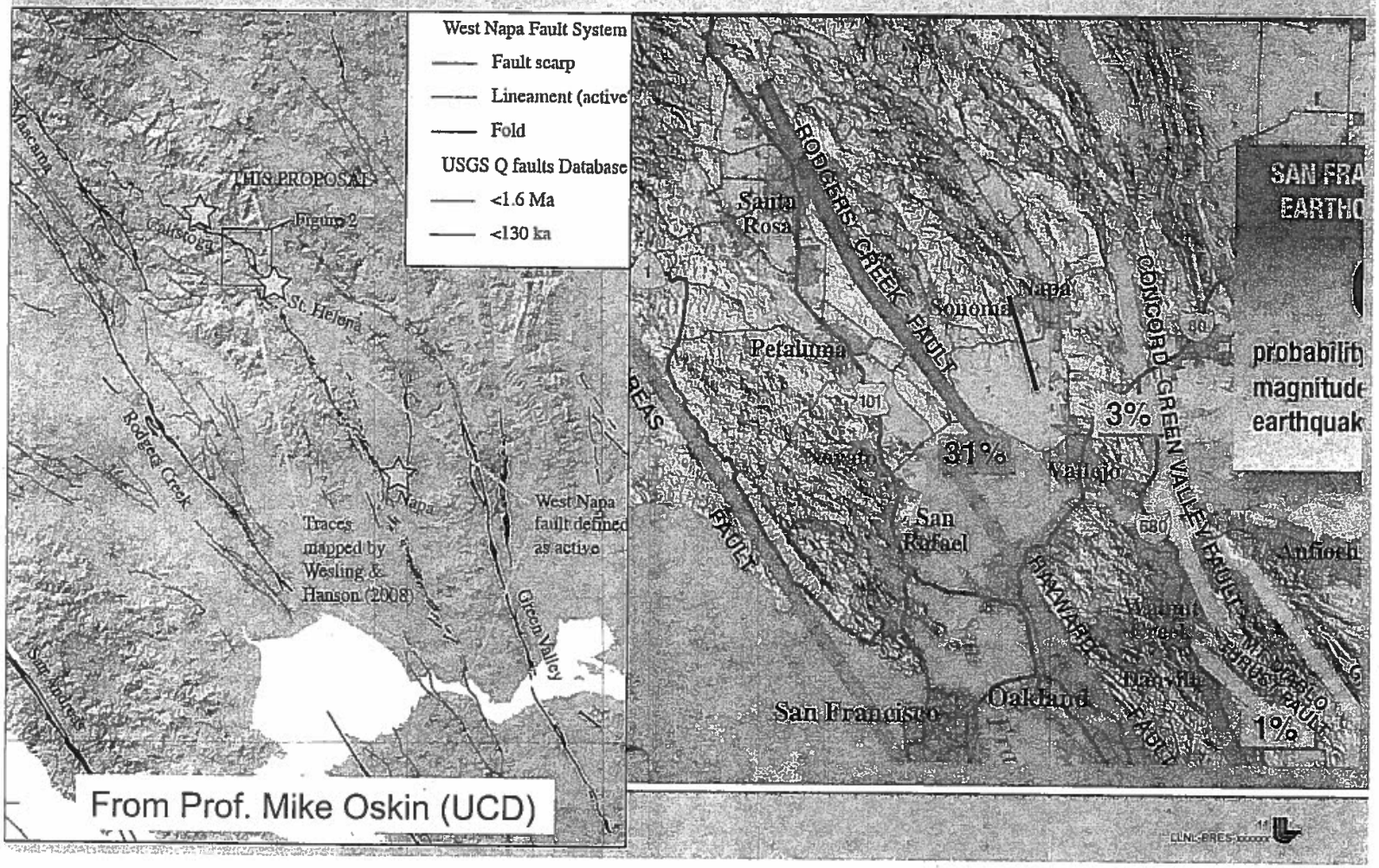
(3) USGS now adds the 72% probability of a 6.7 M or greater. This is the first time there has been a forecast probability for a 6.7 M or greater event.

All of this is new data since the Napa Earthquake of 8/24/14. The West Napa Fault erupted for the first time in 11,000 years to 45 miles in length.

We are more seismically active, as faults are building pressure, and are occurring within shorter time-frames. Hence the probability is 98%.

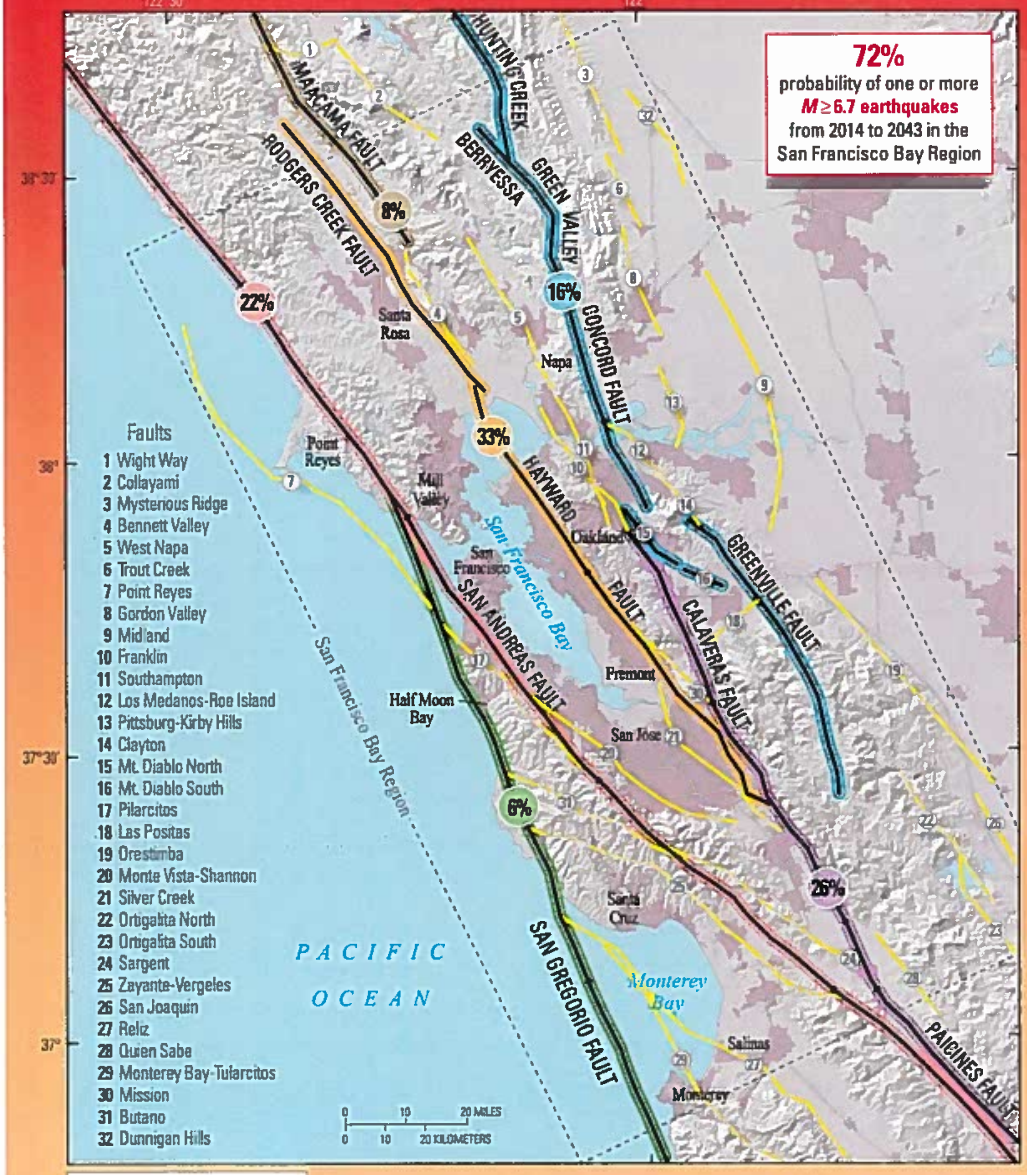
Since 1868, there have been four major earthquakes in San Francisco and the North/East Bay Area that have been felt in Napa: 1868 Hayward; 1906 San Francisco; 1989 Loma Prieta; 2014 West Napa. Three of the four occurred at night when people were in their beds between 1:20 a.m. and 5:19 a.m. Loma Prieta broke at approximately 5:00 p.m. Three of the four occurred just before or just after the Fall Equinox (Sept.). Only the San Francisco Earthquake of 1906 occurred just weeks after the Spring Equinox (Mar.) on April 18, 1906.

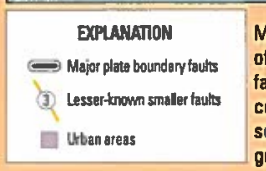
The West Napa Fault was identified as active, capable of M 6 event



USGS
science for a changing world

Earthquake Outlook for the San Francisco Bay Region 2014–2043

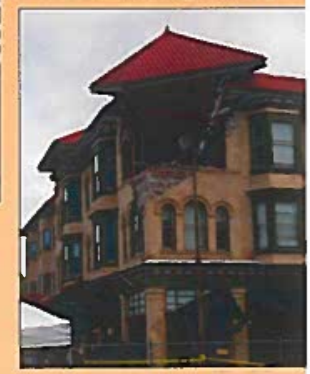




Map of known active faults in the San Francisco Bay region. The 72 percent probability of a magnitude 6.7 or greater earthquake includes the well-known major plate-boundary faults, lesser-known faults, and unknown faults. The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043. The probability that a magnitude 6.7 or greater earthquake will involve one of the lesser-known faults is 13 percent.

Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California. They concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043. Earthquakes this large are capable of causing widespread damage; therefore, communities in the region should take simple steps to help reduce injuries, damage, and disruption, as well as accelerate recovery from these earthquakes.

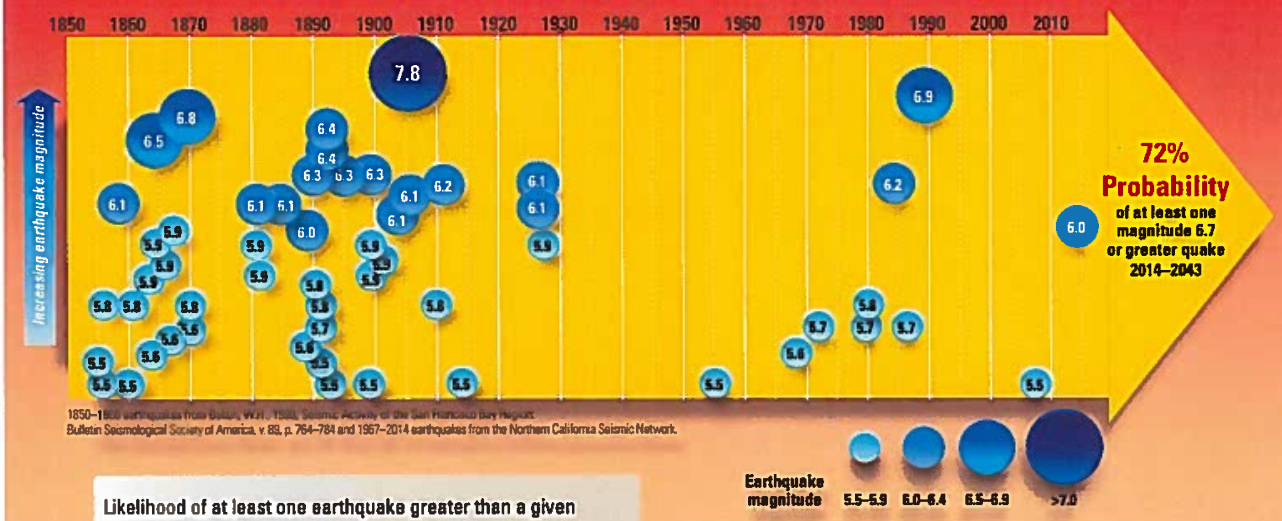
Building damaged in 2014 South Napa earthquake. Photograph by Erol Kalkan, U.S. Geological Survey.



U.S. Department of the Interior
U.S. Geological Survey

Fact Sheet 2015–3020
Revised August 2016 (ver. 1.1)

San Francisco Bay Region Earthquake Timeline



1850–1[illegible] earthquakes from Bolen, W.H., 1989, Seismic Activity of the San Francisco Bay Region: Bulletin Seismological Society of America, v. 89, p. 764–784 and 1967–2014 earthquakes from the Northern California Seismic Network.

Likelihood of at least one earthquake greater than a given magnitude in the San Francisco Bay region between 2014 and 2043.

Magnitude (*M*)	30-year likelihood of at least one earthquake in the San Francisco Bay region
$M \geq 6.0$	98 percent
$M \geq 6.7$	72 percent
$M \geq 7.0$	51 percent
$M \geq 7.5$	20 percent

Timeline of magnitude 5.5 and greater earthquakes in the San Francisco Bay region 1850–2014. In the 50 years prior to 1906, there were 13 earthquakes with a magnitude between 6 and 7, but only 6 earthquakes of similar magnitude in the 110 years since 1906. The rate of large earthquakes is expected to increase from this low level as tectonic plate movements continue to increase the stress on the faults in the region.

Earthquake Preparedness Helps

Early Sunday morning on August 24, 2014, the residents of Napa, California, were jolted awake by a strong, magnitude 6.0 earthquake. Within 30 minutes, the staff of Becoming Independent, a non-profit organization that helps adults with intellectual disabilities lead independent lives, called the people they serve in the affected area. The staff quickly visited all of the clients that needed help with cleanup and making their homes safe, a task made easier because both groups were trained in disaster preparedness and the clients had emergency kits with needed supplies on hand. The South Napa earthquake shifted houses off their foundations, damaged chimneys, started fires, and broke water mains throughout the city, causing hundreds of millions of dollars in economic losses. Many historic masonry buildings in downtown Napa were damaged. The earthquake was the largest in the San Francisco Bay region since the 1989 magnitude 6.9 Loma Prieta earthquake and a clear reminder of the seismic vulnerability of the region. The staff and clients of Becoming Independent showed that understanding and preparing for these events can improve how we live with future earthquakes.

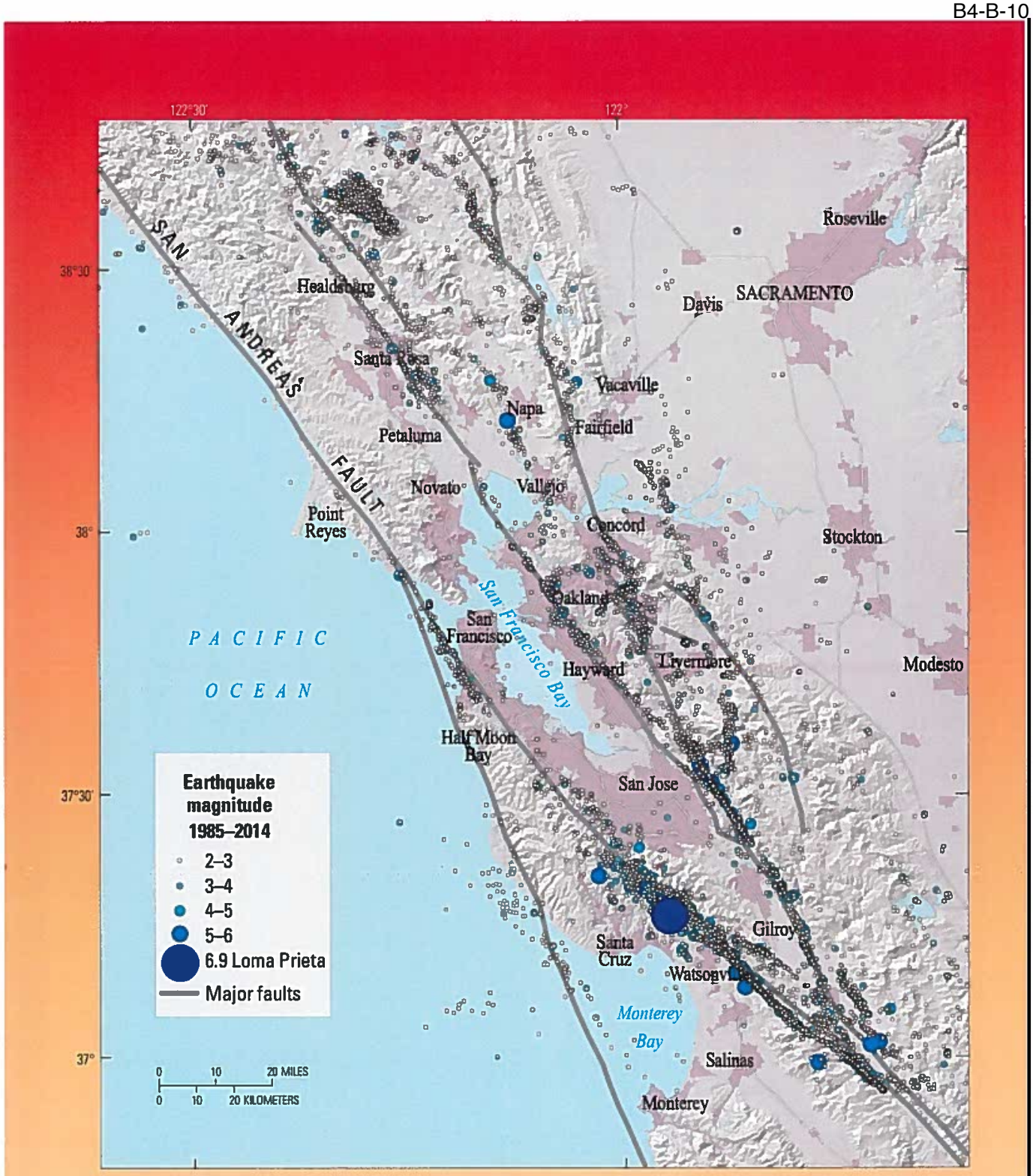
Why Does the San Francisco Bay Region Have Earthquakes?

The same geologic process that is responsible for the San Francisco Bay region's beautiful coastlines, bays, hills, and valleys is also the primary driving force for earthquakes along faults in the region. The Bay region is located within the active boundary between the Pacific and the North American tectonic plates, where the Pacific plate slowly and continually slides northwest past the North American plate. The San Andreas Fault, on which two magnitude 7.8–7.9 earthquakes have occurred in historical time, including the 1906 San Francisco earthquake, is the fastest slipping fault along the plate boundary. Other major plate boundary faults in the San Francisco Bay region include the Hayward, Rodgers Creek, Calaveras, Maacama, San Gregorio, Concord, Green Valley, and Greenville Faults.

How Do Scientists Calculate Earthquake Probability?

Scientists rely upon a variety of techniques to help understand the rate and magnitude of past earthquakes in order to estimate the likelihood of future earthquakes. The Global Positioning System (GPS) and other land surveying and geologic techniques have allowed scientists to make more accurate measurements of how the current plate motions—totaling 1.6 inches per year across the San Francisco Bay region—distribute stress onto these individual faults. Balancing plate motions with the slip during large earthquakes and slow creep on faults allows scientists to calculate average rates of earthquake occurrence over periods of hundreds to thousands of years. (Continued on page 4)

B4-B-10



Map of earthquakes greater than magnitude 2.0 in the San Francisco Bay region from 1985–2014. Small earthquakes occur on both major faults (shown by the gray lines) and minor faults (not shown). Because of the variability of fault geometry, earthquakes at depth do not always coincide with the mapped faults at the Earth's surface. There are sections of major faults, particularly the San Andreas Fault, with few or no small earthquakes but they will produce large earthquakes in the future. Compiled from the Northern California Seismic Network.

(Continued from page 2). A trench excavated across the Hayward Fault in Fremont revealed evidence of 12 large earthquakes over the past 1,900 years. The time interval between these earthquakes ranged from about 100 to 210 years. Historical records indicate that the most recent large earthquake on this fault occurred in 1868. However, detailed information about other past earthquakes in the San Francisco Bay region is difficult to obtain because seismograph records only go back to about 1900, historical accounts are sparse before 1850, and there are limited locations where faults can be trenched to identify and date prehistoric earthquakes.

Calculating accurate earthquake probabilities for short periods, such as 30 years, is also challenging. Although the 30-year time interval is convenient for humans, it is much less than the average time between large earthquakes on these faults, which can range from hundreds to thousands of years. The rate of large earthquakes in the San Francisco Bay region was high in the late 1800s but dropped abruptly after the 1906 San Francisco earthquake on the San Andreas Fault. Scientists believe that the post-1906 earthquake rate decreased because the large amount of slip along the San Andreas Fault in 1906 temporarily reduced the stress on many of the faults in the region. However, the ongoing motion of the tectonic plates began rebuilding stresses after the 1906 event, and earthquakes larger than magnitude 5.5 resumed during the second half of the 20th century. Future large, damaging earthquakes in the San Francisco Bay region, similar in size to the 1989 Loma Prieta and 1906 San Francisco earthquakes, may or may not be accompanied by the level of earthquake activity observed in the late 1800s.

The 2014 Uniform California Earthquake Rupture Forecast version 3 (http://pubs.usgs.gov/fs/2015/3009/) provides an updated estimate of the likelihood of large earthquakes in California over a 30-year time window from 2014 to 2043. The forecast accounts for how fast stress is accumulating on each fault due to plate motions and the time since its most recent large earthquake(s). In updating the probability calculations, scientists used a more complete set of faults for the San Francisco Bay region than those used in the previous (2008) calculations, adding 32 smaller faults to the 5 major fault systems. The new study has also incorporated more options for how multiple faults might rupture together in large earthquakes.

Seven Steps to Earthquake Safety

PREPARE

Before the next big earthquake we recommend these four steps that will make you, your family, or your workplace better prepared to survive and recover quickly:

Step 1: Secure your space by identifying hazards and securing moveable items.

Step 2: Plan to be safe by creating a disaster plan and deciding how you will communicate in an emergency.

Step 3: Organize disaster supplies in convenient locations.

Step 4: Minimize financial hardship by organizing important documents, strengthening your property, and considering insurance.

SURVIVE

During the next big earthquake, and immediately after, is when your level of preparedness will make a difference in how you and others survive and can respond to emergencies:

Step 5: Drop, Cover, and Hold On when the earth shakes.

Step 6: Improve safety after earthquakes by evacuating if necessary, helping the injured, and preventing further injuries or damage.

RECOVER

After the immediate threat of the earthquake has passed, your level of preparedness will determine your quality of life in the weeks and months that follow:

Step 7: Reconnect and Restore. Restore daily life by reconnecting with others, repairing damage, and rebuilding community.

Adapted from Seven Steps To Earthquake Safety
http://earthquakecountry.org/sevensteps/

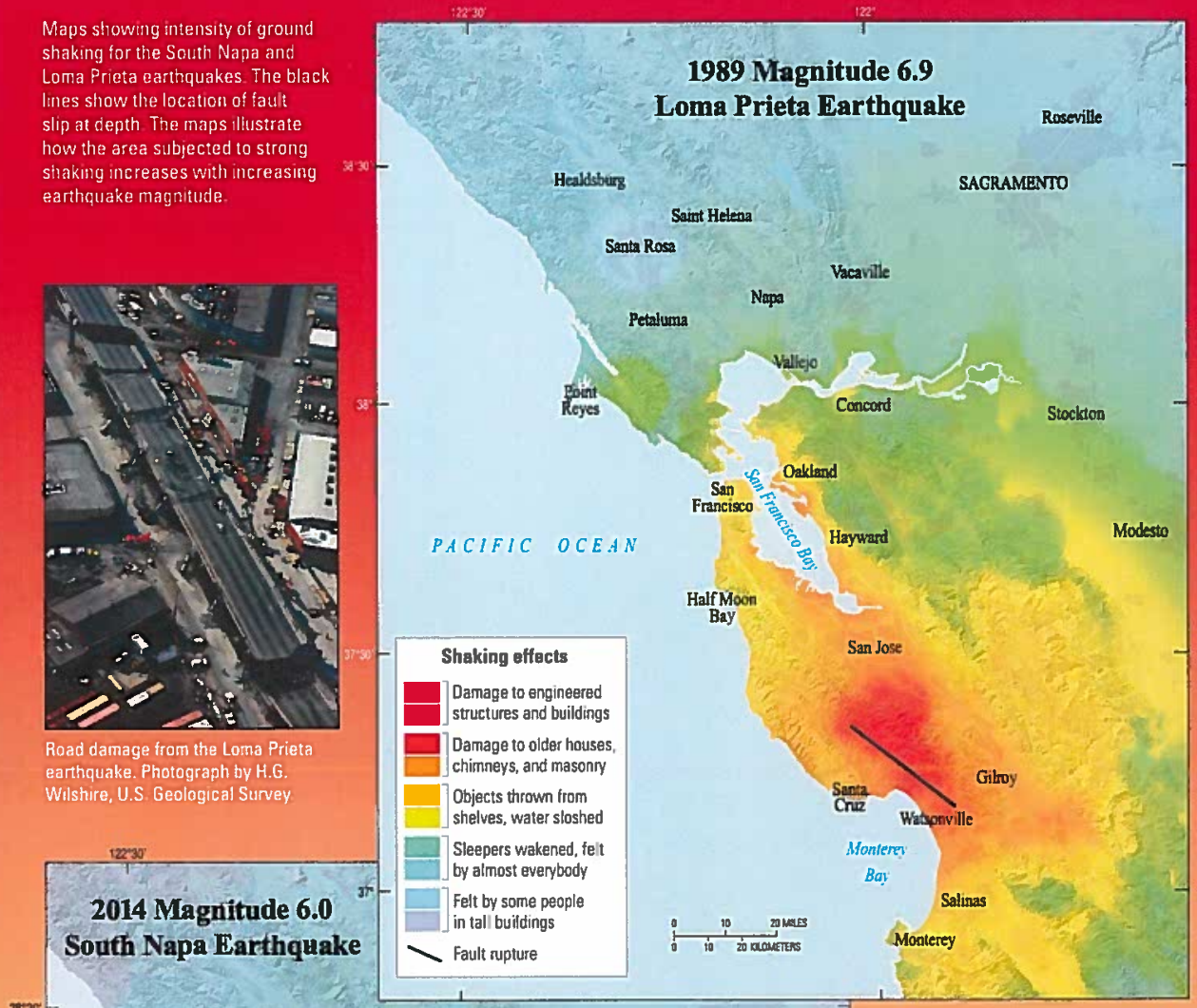
Probabilities of Earthquakes in the San Francisco Bay Region

Smaller earthquakes occur more frequently than larger earthquakes. The probability that an earthquake of magnitude 6.0 or larger will occur before 2043 is 98 percent. The probability of at least one earthquake of magnitude 6.7 or larger in the San Francisco Bay region is 72 percent, and for at least one earthquake of magnitude 7.0 or larger it is 51 percent. These probabilities include earthquakes on the major faults, lesser-known faults, and unknown faults.

The probability of a large earthquake occurring on an individual fault in the San Francisco region is lower than the probability of an earthquake occurring anywhere in the region. The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward, Rodgers Creek, Calaveras, and San Andreas Faults. In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward or Rodgers Creek Faults. Individual sections of these faults have lower probabilities for large earthquakes to occur (continued on page 6);

Maps showing intensity of ground shaking for the South Napa and Loma Prieta earthquakes. The black lines show the location of fault slip at depth. The maps illustrate how the area subjected to strong shaking increases with increasing earthquake magnitude.

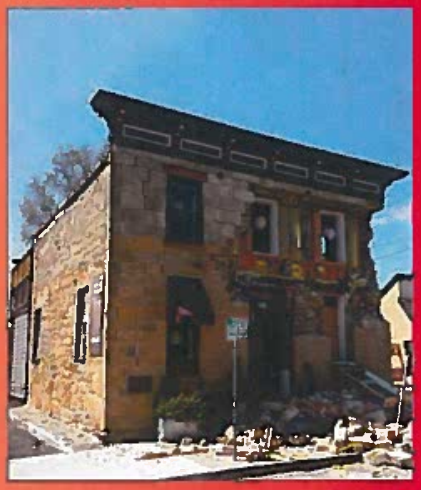
Road damage from the Loma Prieta earthquake. Photograph by H.G. Wilshire, U.S. Geological Survey.



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

Additional Earthquake Resources

American Red Cross – Bay Area (http://www.redcross.org/local/northern-california-coastal)
Association of Bay Area Governments (http://resilience.abag.ca.gov/earthquakes/)
Bay Area Earthquake Alliance (http://bayquakealliance.org/)
California Earthquake Authority (http://www.californiarocks.com/)
California Geological Survey
(http://www.consrv.ca.gov/cgs/geologic_hazards/earthquakes)
Did You Feel It? (http://earthquake.usgs.gov/earthquakes/dyfi/)
Earthquake Country Alliance (http://earthquakecountry.org/)
Putting Down Roots in Earthquake Country (http://pubs.usgs.gov/gip/2005/15/)
ShakeAlert – An Earthquake Early Warning System for the United States West Coast
(http://pubs.usgs.gov/fs/2014/3083/)
ShakeMap (http://www.cisn.org/shakemap/nc/shake/index.html)
ShakeOut.org (http://www.shakeout.org/california/bayarea/)
Uniform California Earthquake Rupture Fault version 3 Fact Sheet
(http://pubs.usgs.gov/fs/2015/3009/)
United Policyholders (http://www.uphelp.org/)
USGS Real-Time Earthquakes (http://earthquake.usgs.gov/earthquakes/map/)



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

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Earthquake probabilities are only one component in the evaluation of earthquake hazards. Higher magnitude earthquakes have broader areas of intense shaking and cause more damage than lower magnitude earthquakes. In a magnitude 6.0 earthquake, strong shaking and damage are confined to a localized area, as illustrated by the 2014 South Napa earthquake. In comparison, the 1989 magnitude 6.9 Loma Prieta earthquake caused damage over a region nearly 100 miles long. Local soil and geologic conditions, bedrock type, quality of building construction, and susceptibility to flooding (caused by dam or levee failure) can also affect the amount of damage at a particular site. This was dramatically demonstrated by the 1989 Loma Prieta earthquake, which devastated vulnerable parts of Oakland and San Francisco, more than 50 miles from the fault rupture.

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- Stay prepared by repeating these steps on a regular basis. For example, reassess your preparedness every year and participate in the annual Great California ShakeOut drill on the third Thursday in October.

Lack of adequate shear walls on the garage level exacerbated damage to this building at the corner of Beach and Divisadero in the Marina District, San Francisco, during the October 1989 Loma Prieta earthquake.

Brad T. Aagaard, James Luke Blair, John Boatwright, Susan H. Garcia Ruth A. Harris, Andrew J. Michael, David P. Schwartz, and Jeanne S. DiLeo

Edited by *Kate Jacques* and *Carolyn Donlin*

For more information contact:
1-888-ASK-USGS
(1-888-275-8747)

http://earthquake.usgs.gov/
http://ask.usgs.gov
https://www.facebook.com/USGeologicalSurvey
https://twitter.com/USGS

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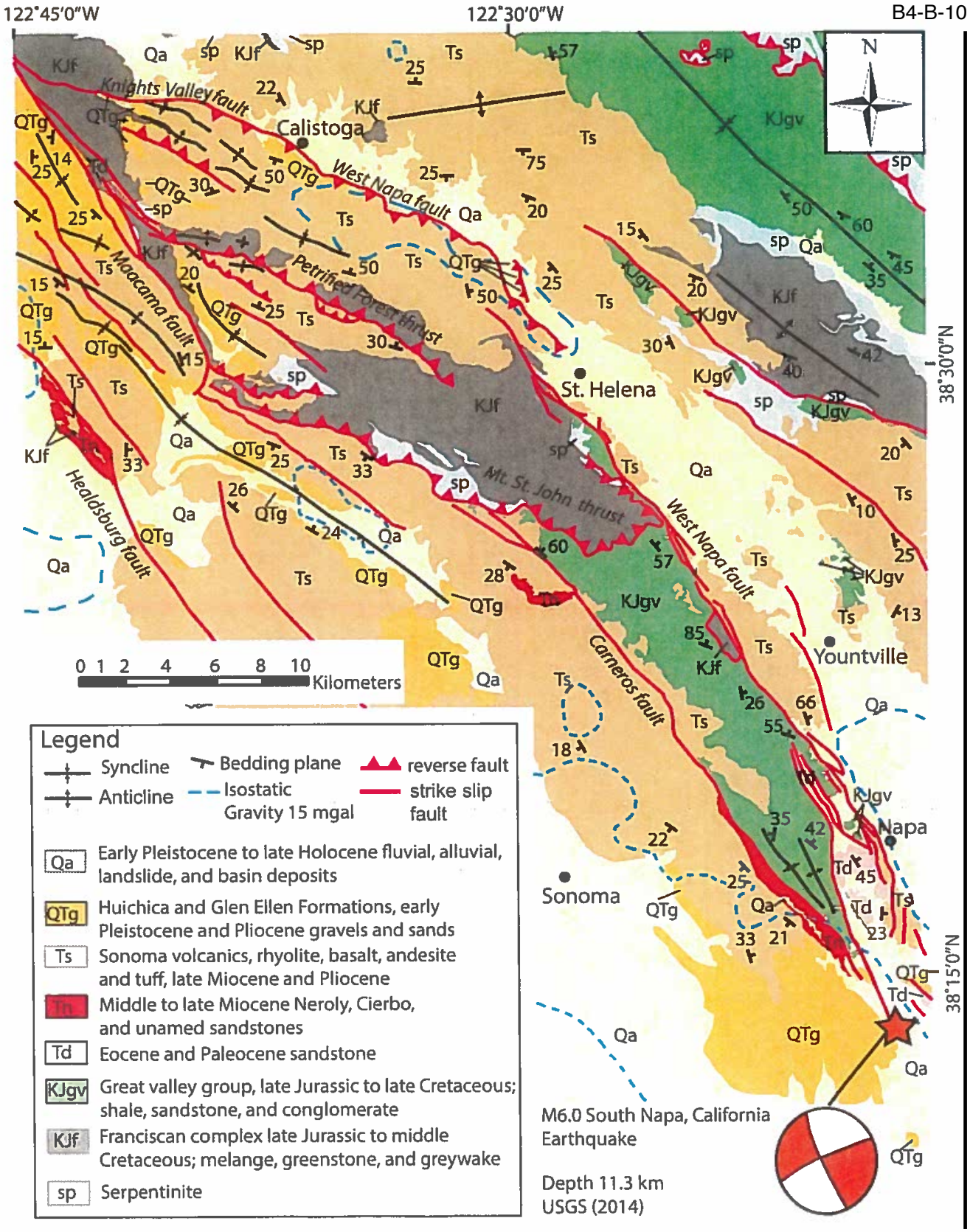
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38°15'0"N
N
Knights Valley fault
West Napa fault
Petrified Forest thrust
Mayacama fault
Healdsburg fault
Mt. St. John thrust
Carneros fault
Calistoga
St. Helena
Yountville
Napa
Sonoma
0 1 2 4 6 8 10 Kilometers
Legend
Syncline
Anticline
Bedding plane
Isostatic Gravity 15 mgal
reverse fault
strike slip fault
Qa Early Pleistocene to late Holocene fluvial, alluvial, landslide, and basin deposits
QTg Huichica and Glen Ellen Formations, early Pleistocene and Pliocene gravels and sands
Ts Sonoma volcanics, rhyolite, basalt, andesite and tuff, late Miocene and Pliocene
Tn Middle to late Miocene Neroly, Cierbo, and unamed sandstones
Td Eocene and Paleocene sandstone
KJgv Great valley group, late Jurassic to late Cretaceous; shale, sandstone, and conglomerate
KJf Franciscan complex late Jurassic to middle Cretaceous; melange, greenstone, and greywake
sp Serpentinite
M6.0 South Napa, California Earthquake
Depth 11.3 km
USGS (2014)

Comment Letter B5

DEC. 29, 2018

RECEIVED
PLANNING DEPARTMENT
DEC 31 2018
CITY OF ST HELENA

TIM KLEIN
1110 PEPPERTREE CIRCLE
ST. HELENA, CA. 94574
(707) 963-8100

TO WHOM IT MAY CONCERN:

AS A LONG TIME RESIDENT OF ST. HELENA, I AM VERY CONCERNED ABOUT THE QUALITY OF LIFE HERE. IN THIS LETTER I WILL ONLY DISCUSS THE CURRENT NEED FOR THE CONTROL OF TRAFFIC FLOW, ESPECIALLY DURING RUSH HOURS, WEEKENDS, AND HOLIDAYS. IN THE LONG TERM THERE WILL BE A NEED FOR ADDITIONAL CONNECTOR STREETS TO MITIGATE "IN-TOWN" TRAFFIC CONGESTION. B5-1

FOR NOW, I FEEL THAT A "HIGH AND WIDE" ADAMS STREET BRIDGE, CROSSING THE NAPA RIVER AND ALIGNING WITH THE CURRENT MEADOWOOD ACCESS STREET ON THE EAST SIDE OF THE SILVERADO TRAIL, COULD BE THE CORE OF THE UPDATED SYSTEM. B5-2

THIS BRIDGE SHOULD BE A "500 YEAR" FLOOD LEVEL HEIGHT SINCE THE LONG TERM CLIMATE CAN BE UNPREDICTABLE, AND I REMEMBER HOW ISOLATED PEOPLE WERE DURING PAST FLOODING PERIODS.

ADDITIONALLY, THE NEW BRIDGE SHOULD BE AT

B5-2

LEAST THREE "WIDE" LANES WITH A PROTECTED BIKE AND PEDESTRIAN PATHWAY. THE TRAFFIC LANES SHOULD BE WIDE ENOUGH TO COMFORTABLY ACCOMODATE TRACTOR-TRAILER RIGS (18 WHEELER), LARGE BOX TRUCKS, LONG MOTOR HOMES, AND STRETCH "LIMOS" WITHOUT THE NEED TO CROSS INTO ADJOINING LANES WHILE MANEUVERING ONTO THE BRIDGE, OR ENTERING THE HIGHWAY FROM THE BRIDGE.

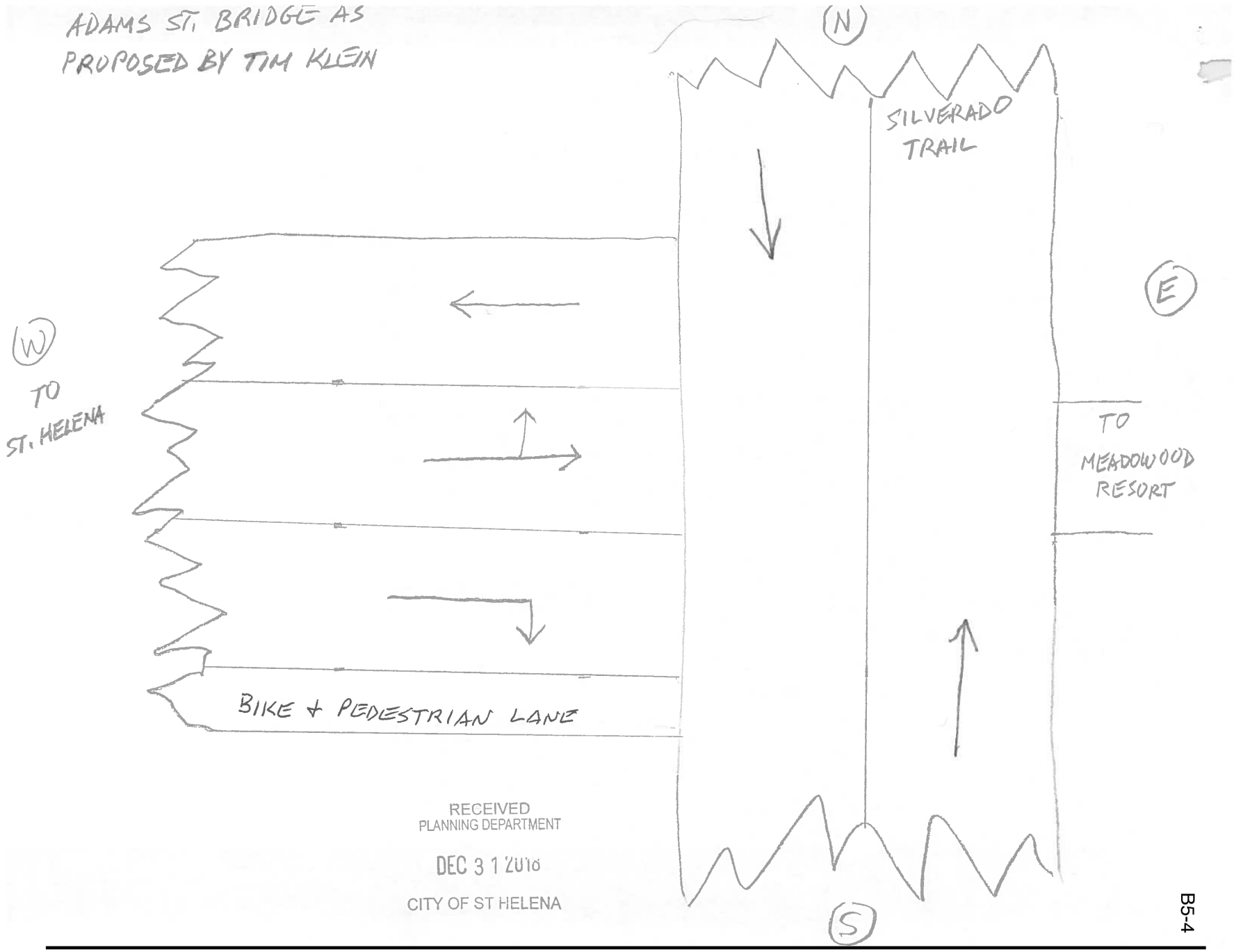
AFTER THE ADAMS STREET BRIDGE IS COMPLETED, I THINK THE EAST POPE STREET BRIDGE SHOULD BE CHANGED TO ONE WAY ONLY, EASTBOUND, WITH A PROTECTED BIKE AND PEDESTRIAN PATHWAY. TRACTOR-TRAILER RIGS AND BUSSES SHOULD BE DIRECTED TO THE ADAMS ST. BRIDGE. ENFORCEMENT COULD INCLUDE CAMERAS, ETC., ESPECIALLY DURING PEAK TRAFFIC PERIODS, WITH FOLLOW-UP BY POLICE.

LATER, STARR STREET SHOULD CONNECT NOT ONLY ADAMS AND POPE STREETS, BUT IT SHOULD CONTINUE NORTH TO DEER PARK AND SOUTH TO DOWDELL LANE

B5-3

SINCERELY—

Tim Klein

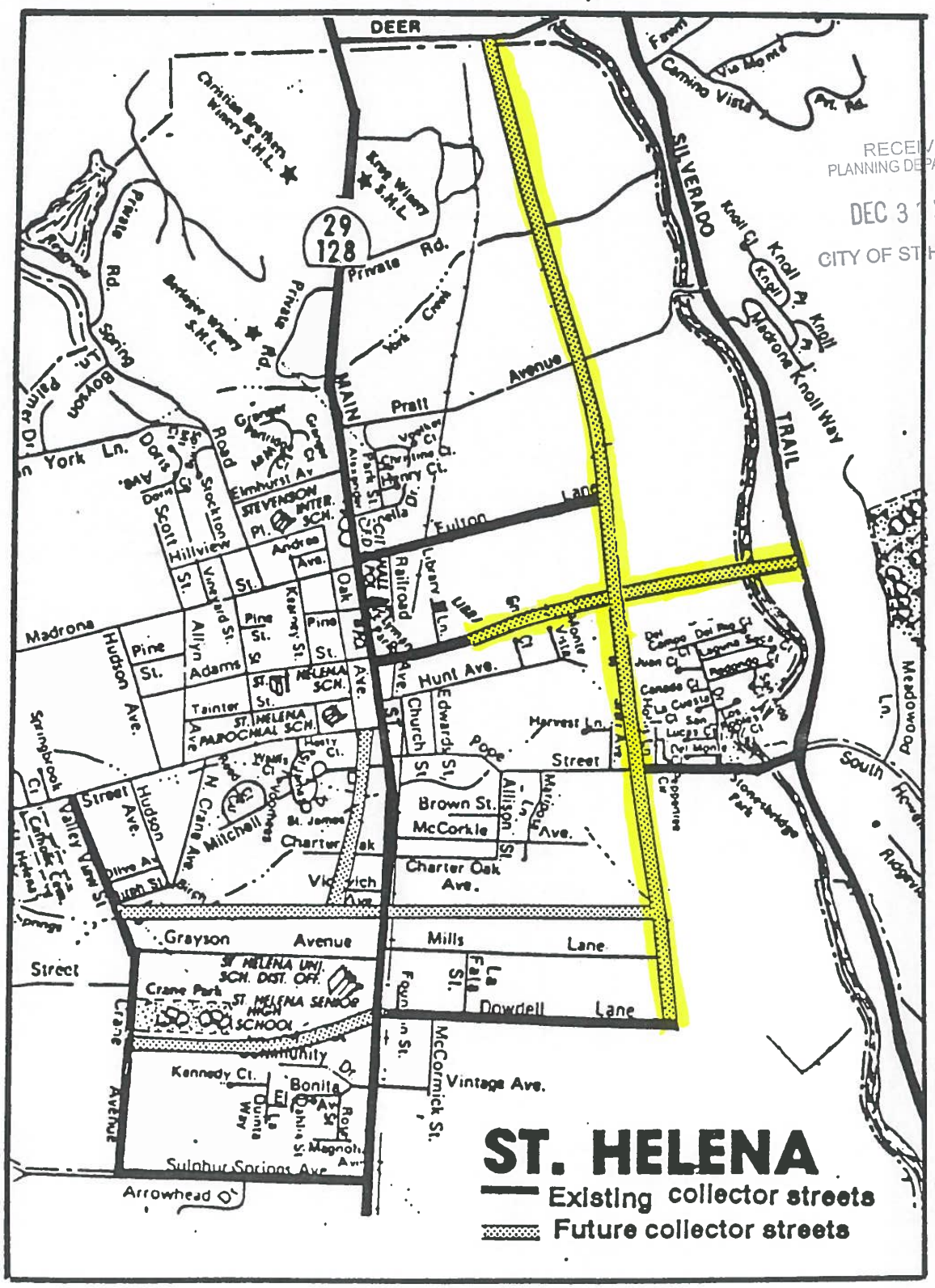


RECEIVED
PLANNING DEPARTMENT
DEC 3 1 2016
CITY OF ST HELENA

CORRECTED MAP

B5-4

RECEIVED
PLANNING DEPARTMENT
DEC 3 1 2013
CITY OF ST. HELENA



Proposed circulation element amendment to the general plan 10/26/80

Comment Letter B6

From: John Ponte
Sent: Sunday, December 30, 2018 3:54 PM
To: Noah Housh <NHoush@cityofsthelena.org>
Cc: Aaron Hecock <ahecock@cityofsthelena.org>
Subject: Comments GP EIR

Good Afternoon, Noah.

I am writing to you from this address with comments on the GP EIR that are more editorial in nature than those that I expressed at the PC meeting. Most of these herein are more of a 'fix it' nature - wrong word, wrong name (in one case, wrong city), wrong place or poorly worded. A few are a bit larger than that but the most important ones were made from the dais in the hearing and with the endorsement (apparently) of my colleagues. B6-1 B6-2

These are lesser comments that I would have made if droning on for a couple of hours was either possible or desirable. However, in my opinion, such errors contribute to lowering the perceived veracity of any document and the GP EIR is a document one wishes to have very high perceived veracity. My colleagues have not seen or discussed these, they are my own.

The document needs a good editor. This is only a weak contribution to a start as I am not trained or talented in that area.

The comments were written in .odt but a .doc file - which may have made some automatic formatting changes - is also attached.

As always, questions or comments are invited -

John

ES-1, third paragraph,third sentence. Consider adding federal environmental review as a possibility (albeit rare). Also consider not capitalizing “State” throughout the document, especially since federal is not capitalized anywhere in the document. B6-3 B6-4

ES-1, Proposed Plan, first paragraph,last sentence. Consider changing “fully replace” since, as correctly noted further along in the document, the housing element will not be replaced. B6-5

ES-4, Tables ES-1 and 2. Consider eliminating rounding to the nearest 100. Not only does this result in some intuitively confusing totals, but rounding to the nearest 100 with such small numbers leads to very large uncertainties on a percentage basis. In addition, in other locations in the document, exact B6-6

numbers are depicted. Even the State Department of Finance now uses exact numbers in their E-1 population estimates. B6-6

ES-5, Transportation Network Enhancement Alternative, second paragraph, third sentence. Please do not capitalize “downtown” as it is not a proper noun. Excess capitalization seemingly appears often in the document; please consider removing all such cases (“CALTRANS”, “Planning Area” or “Tribal Cultural” for examples). B6-7

ES-9, Transportation and Traffic, second paragraph. Please write out “Twenty-seven” (or any number if it begins a sentence). B6-8

ES-10, Identification of Environmentally Superior Alternative, first paragraph. Consider writing numbers consistently in the text. In this paragraph, some numbers are written (“six” and “seven”) while another one word number (“11”) is not. Generally either all numbers are written with numerals (except when beginning a sentence), no numbers are written with numerals or only numbers that can not be written with one or two words are shown as numerals. B6-9

1-2, Intended Uses of the EIR, last sentence. Please consider changing the name “Napa Valley Transit Authority” to the correct name. B6-10

2-14, Urban Limit Line,third sentence. Please consider changing the end of the sentence to read, for the sake of clarity, “as described in Table 2.3-2.” B6-11

2-21, Tables. Please see comment ES-4. B6-12

2-22, Table 2.3-5. Consider correcting the Study Areas column. B6-13

3.1-3, Open Space and Agriculture, second sentence. Is it 65 percent, 75 percent or 65 to 75 percent? Please clarify. B6-14

3.1-4, Light and Glare, last sentence. This reads as a flat conclusion but does not appear to be buttressed by data. Please consider either adding information or softening the sentence (for example, “...appear to be typical for an urbanized setting”). B6-15

3.1-10, CD5.E and 3.1-11, Impact 3.1-2 last sentence. It looks a bit odd calling for the city to consider having SR 29 designated a scenic highway (CD5.E) and at the same time writing that the new GP will not impact any scenic highway as the city has none. Consider deleting, “...lack of any designated state scenic highways with in the City and...”, or making it clear that even if SR 29 is designated as a scenic highway, the polices in the plan will ensure that there are no impacts to scenic resources. B6-16

3.1-12, second paragraph, second line from the end. Please consider replacing “main” with “all” as CD1.8 does not appear to limit itself to any particular roadway type. B6-17

3.2-2, Agricultural Context, second sentence. Consider replacing the value given for agricultural production in Napa county with a figure considerably larger than the $737,298 shown. B6-18

3.2-2, Farmland Characteristics. Consider rewording the second sentence, Agricultural uses as shown on Figure 3.2-1 are spread throughout the city, not simply adjacent to the ULL. B6-19

3.2-8, Napa County Measures J and P, second sentence. Consider replacing “Ma”with “Map”. B6-20

3.2-12, Methodology and Assumptions, second paragraph. Please consider replacing, “The Planning B6-21

Area for the Proposed Plan...” with the simpler, just as accurate and easier to read, “The planning area ...”. Consider a universal search and replace, as the wordy phrase is used multiple times. B6-21

3.3-3, Carbon Monoxide, fourth sentence. Please consider rewording – perhaps “not photochemically reactive” or “not an ozone precursor”. It is a reactive compound, burning easily and binding to hemoglobin much more readily than oxygen. B6-22

3.3-5, Table 3.3-1, Notes 4 and 5. For Note 4, please consider updating the expected designation date. For Note 5, please consider removing it from the Federal Standards Classification column for lead and adding it to the State Standards Classification column for both lead and vinyl chloride. B6-23

3.3-6, second paragraph, second sentence. Please consider rewording. The sentence appears to read that the air basin exceeded the state one-hour standard five times and the federal one-hour standard two times when Table 3.3-1 shows no federal one-hour standard. If the sentence is attempting to read that the the state one-hour standard was exceeded five times and the federal eight-hour standard was exceeded two times, please write that. B6-24

3.3-8, Federal Clean Air Act, first paragraph,second sentence. Consider changing “CAA” reference to the California Clean Air Act to CCAA. Further, consider moving the entire sentence on the CCAA to the following section covering that law. B6-25

3.3-14, Bay Area Air Quality Management District, second paragraph, first sentence. What is, “The air quality study area..”? If it is the planning area, please so state; if it is some other area, please describe how it is related to the planning area. B6-26

3.3-24, CR1.7. Consider altering the sentence to read “...with the owners ...” or perhaps “... with the new owners ...” - although not so new anymore. B6-27

3.3-30, Applicable Control Measures, first paragraph. Please capitalize “Buildings”(#4). B6-28

3.3-31, Table 3.3-6, TR8. Please consider rewording as St. Helena is not the only rural community in the Bay Area and opportunities for ridesharing services and incentives are well more than “somewhat” limited. Would suggest the deletion of “relatively” and “somewhat” and the addition of “most” between “to other”. B6-29

3.3-37, Table 3.3-7, Note 2. Please consider deleting “...such as the Proposed Plan,” as unnecessarily repetitive. B6-30
3.3-38, Table 3.3-8, Note 2. Please see above. Also consider “general plan” rather than”specific plan”.

3.3-42,AQ-1, fifth bullet. “Laying building pads ...”- is this intended to read “Pour”? In addition many structures in St. Helena have live, not poured floors. Is there a suggestion for those structures as well? B6-31

3.3-42,AQ-1, seventh bullet. Is the check by the certified mechanic (and certified by who for what?) supposed to take place each day, month, project? B6-32

3.3-42,AQ-1, eighth bullet. Consider adding “for example” just after the parenthetical statement begins.

3.3-42,AQ-1, what should be the tenth bullet. Consider placing a bullet before “Where warranted” and removing the underline. Also consider tabing in the next two paragraphs and beginning them with “Power” and “Ensure”, respectively.

3.3-47, second paragraph, first sentence. Consider “21-year”. B6-33

3.3-48, second paragraph, second sentence. Please consider ending the sentence with “approval” or perhaps “action by the city”. B6-34

3.3-48, Gasoline Stations. Wasn't Flyers near the corner of 29 and Inglewood in area 3? It is now an open and operating Mobil station. B6-35

3.3-50 Table 3.3-9. Consider including the address of Nella Oil and capitalizing “Main” in the address for St. Helena Petroleum. B6-36

3.4-1, Habitat Types, first sentence. Consider the wooded hillside and the interspersed housing on and near Howell Mountain Road on the east side of the city and alter the sentence accordingly. B6-37

3.4-4, Orchard-Vineyard, fifth sentence. It is probably an exaggeration to claim that “...under the vines are usually sprayed with a herbicide ...”, as there are many organic and semi-organic growers in the region. Consider “sometimes” or even “often”. B6-38

3.5-2, third and fifth paragraphs. Please consider removing all of the quotation marks. B6-39

3.5-4, third paragraph, first sentence. Calistoga will probably be surprised to find it is not in the Napa valley. Is this supposed to read “... extended from St. Helena to Calistoga ...”? B6-40

3.5, Figure 3.5-2. The figure includes 1380 Main Street. Wasn't that the old gas station that has been removed? B6-41

3.6-7, second paragraph,first sentence. Please consider writing out ozone. In addition “higher O3 days” means more days exceeding state and/or federal standards, higher concentrations or both? B6-42

3.6-8, Energy Star Program, second to the last sentence. Please consider deleting “though a Rater” as unneeded. If it is desirable to retain the phrase, consider “as determined by an approved rater”. B6-43

3.6-17,Executive Order S-1-07. Please consider writing out “LCFS” the first time it is used in the paragraph. B6-44

3.6-17, Plan Bay Area, first and third paragraphs. Consider writing out PDA in the first paragraph, rather than the third. B6-45

3.6-17, BAAQMD, first sentence. As is noted correctly elsewhere in the document, the BAAQMD covers most, but not all of the nine Bay Area counties. Please consider adding “most” to the sentence. B6-46

3.6-26, LU1.A. Consider rewording. State statute allows the division of single family homes into two units (one main unit and an ADU) by right. B6-47

3.6-31, PS1.I. Consider updating the reference to the BAAQMD's 2000 CAP to the 2017 CAP.

3.6.31, CC1.B. Consider updating by deleting the reference to a new transit center. NVTA has a new transit center just off Soscol Avenue in Napa.

3.6-33, CC3.A and CC3.B. Please consider shifting the deadline for these two new programs; while a 2020 target was fine in 2010, it is too short for a GP that will not be adopted until halfway through the

first quarter of 2019. B6-47

3.6-33 and -34, CC4.4 and CC4.J. The first calls for expanding the city's urban forestry program, while the second calls for the establishment of such a program. Shouldn't the policy call for the creation of the program as well as the implementing action if such a program does not exist? And if the program does exist, then the implementing action needs correction. Consider determining which is correct and then crafting the policy and implementing action accordingly.

3.6-36, Impact 3.6-1. Please consider including per year with the emissions target. Note that sometimes it is included in the chapter and sometimes it is not - leading to some possible confusion. B6-48

3.6-39, Transportation Improvements. The Wine Train is not - according to court determination - a transportation service; please do not reference it as such, imply that it is a transportation service or claim it is useable as a transportation service. There is no “Napa Valley Transit Authority”; please correctly reference the agency. Napa County does not provide transit services; thus partnering with the County of Napa will not be successful. NVTA operates all of the public transit based in the Napa communities. B6-49

3.6-44, Plan Bay Area. Please consider rewording. Some sections of the document credit MTC with the RTP/SCS, others credit both MTC and ABAG and this seemingly credits ABAG alone. Consider determining which is correct and remaining consistent. B6-50

3.7-17. Two sections on this page cover the Disaster Mitigation Act. Please consider combining the sections. B6-51

3.7-17, State Multi-Hazard Mitigation Plan, first sentence. Please consider adding “... which allows the state...” after “State of California”. B6-52

3.8-1, bullet points, second to the last sentence. The Pratt Street bridge may well be partially in the city and partially in the county – the county maintains the bridge. Please check and modify the sentence accordingly. B6-53

3.8-2, first paragraph,last sentence. Please consider deleting “... to a limited extent ...” as methane is a hazardous material and is used extensively in residential areas. B6-54

3.8-2, Hazardous Materials Transport, fourth sentence. Please consider deleting “...occasionally runs freight service ...” as it is non-existent in the St. Helena block and has been for years. B6-55

3.8-4,last paragraph, last full sentence. Consider rewording. The next five years would be out to 2023 or 24, not 2020. B6-56

3.8-5, Table 3.8-1. The Noble site at 1132Main Street is listed twice and it is not clear if this is due to an error or two different locations on the same property. The PG&E property is also listed twice, as is the property at 607 Highway 29, under SWRCB and DTSC locations. Are these double listings actually separate sites or the same sites as carried by different agencies? If they are the same sites, the total number of sites as depicted in the paragraph directly above the Table is not correct. The Table does not seem to identify the Mobile station near Inglewood and SR 29 as an SWRCB permitted site but does note it as a LUST site. Please clarify. B6-57

3.8-16, California Health and Safety Code, second sentence. Please consider changing the reference to B6-58

Napa County from Alameda County. B6-58

3.8-27, Impact 3.8-3, first paragraph,next to the last sentence. The St. Helena Catholic School has closed and it is not expected to reopen. B6-59

3.9, Figure 3.9-3. Please consider changing the percentage chance shown in the key for 500-year events to 0.2%. B6-60

3.10-3, Table 3.10-1. Please change “Row” to “ROW” after “Transportation/Road”. B6-61

Figure 3.10-1. Valley View Avenue appears to be incorrectly labeled as Crane Avenue. The incorrect label also appears on other maps (see, for example, Figure 3.11-1), but not all, in the document. B6-62

3.10-14, California Public Utilities Commission, last sentence. According to adjudicated determination, the city has significantly more than “some” authority to regulate particular activities of the excursion rail service – for selected actions, the decision is solely the city's. Please consider deleting “some”. B6-63

3.10-20, LU1.4. Please consider making “LU1.6” the beginning of a new bullet section. B6-64

3.10-21, LU1.E. Please consider making “LU2.1” the beginning of a new bullet section.

,

3.10-21, LU5.2. Please consider ending the sentence with one period.

3.11-7 & 8, Table 3.11-3. Please consider clarifying either though a note or an addition to the title that the nose levels were calculated based partly on traffic counts. It is also curious that Note 2 states that the truck volumes were set at two percent for all roadways. However, the truck volumes for Main Street are available from Caltrans and are significantly higher than two percent. Why was the more accurate Caltrans figures not utilized? Further, Note 3 states that the speeds were assigned based on road type while the posted speeds are readily available. B6-65

3.11-19, PS2.D. Is Ldn the same as DNL? If so, please consider being consistent in the use of terms. If not, please include in the definition of terms, Table 3.11-1. B6-66

3.11-20, PS2.H. Please consider deleting “vehicles and motorcycles” as it would likely be illegal to “regulate” them in such a way as to restrict access to residential (or nearly any) publicly owned street which may be adjacent to sensitive receptors, as defined. B6-67

3.1-23,Table 3.11-11. Please see comment for Table 3.11-3. B6-68

3.11-29, first paragraph. This paragraph claims that the proposed plan sets thresholds in CNEL while on page 3.11-19, where the relevant polices of the proposed plan are depicted, the term used, particularly in PS2.C, is LAdn. Are these terms identical? LAdn does not seem to appear in the Definition of Terms, Table 3.11-1. Please consider the consistent use of terms, particularly for the lay reader. B6-69

3.12-2, Table 3.12-1, Please consider deleting “Other:” as it only applies to the fire marshal. B6-70

3.12-6, Libraries, first paragraph. The data in the paragraph is putatively from the 2015-16 fiscal year, but the year reported in the citation is 2015. Please clarify. B6-71

3.12-7, Table 3.12-3, Community. There are eight bocce courts in Crane Park. B6-7 2

3.12-9,Figure 3.12-2. Please consider identifying Lewis Station. B6-73

3.12-11, first paragraph, second to the last sentence. Why is the city of St. Helena cited when the section references state code dealing with school districts? B6-74

3.12-12, Napa County General Plan Recreation and Open Space Element. Why is there no reference to the Napa County Regional Park and Open Space District and that agency's adopted parks master plan in any section? B6-75

3.12-16, Fire Service. The data in the paragraph for response times and calls is from 2017, but the citation is 2015. Please clarify B6-76

3.12-16, Police Service. Please consider using information from the recent SHAPE study on the adequacy of the existing station. B6-77

3.12-19, second paragraph, first sentence. Please reword. There are two state parks, not regional parks, in Napa county just outside St. Helena. Both are operated under contract to the state by the Park and Open Space District. B6-78

3.13-2, last paragraph. While it is true that the most of the jobs available in St. Helena do not pay sufficiently to afford a home in the community thus exacerbating the in in-commute as the paragraph correctly claims, it is also likely that the high housing costs also, but to a lesser degree, exacerbate the out-commute for those who seek and need a higher-paying job to live in the community than is generally offered locally. Thus the high housing costs contribute not only to a higher in-commute but a higher out-commute as well. B6-79

3.13-3, SR 29, first and third sentences. Please consider rewording. SR 29 in Napa county is not solely a two to four lane rural highway. It also has a freeway segment, an expressway segment and some other types of roadways. In addition, consider rewording the third sentence as the turn lane is not continuous between Dowdell and Madrona – it is missing or has a double-double yellow in two locations. B6-80

3.13-3, SR 29, second paragraph. Please consider providing evidence that X-X trips are presently diverting in significant numbers to local roadways in the city. Without such evidence, an old chestnut is reenforced that can lead to unhelpful projects and programs. It may become a problem in the future, but currently the traffic on those streets appears to be almost purely local. B6-81

The Silverado Trail is a special case, in that it works as nearly a couplet with SR 29 and given the very small length of the Trail that is within the city – the trips on the Trail for the City are nearly all X-X, X-I or I-X with no or nearly no I-I trips possible.

3.13-3, SR 29, last paragraph. Please reword. The channelization project actually goes back three decades to a time when maintenance projects were listed in the STIP and were debited to the county minimums. The project was split into two pieces and the first segment was completed in the 90's (Yountville to Mee Lane). When the STIP and SHOPP were split, the second half did not migrate to the SHOPP until the Napa communities traded the STIP funds to the Trancas/29 interchange to fill a shortfall and requested moving the Mee Lane to Charter Oak segment to the SHOPP. It may well have B6-82

been the oldest STIP/SHOPP programmed project in the state by the time it was actually constructed. B6-82

3.13-4,Figure 3.13-1. The figure includes and rates several private roads. Is that intentional? In addition, please consider the rating of Madrona west of Hudson. It has few houses but sizable vineyards face the street. The city may also have an agreement with one of the adjacent owners on the character of the street, which is intended to be rural, not residential. B6-83 B6-84

3.14-6, Madrona Street/Fulton Lane, last sentence. Please consider removing the quotes around dead end. B6-85

3.13-16, second paragraph, second sentence. Please consider another example that is a public and not private road. B6-86

3.13-17, Rail Service. The Wine Train is not a passenger service, please consider another term for its ridership. B6-87

3.17-20, Environmental Assessment Review and Comment, last sentence. Please consider replacing "Rohnert Park" with "St. Helena". B6-88

3.17-21, first paragraph,last sentence. Please consider deleting as it has noting to do with the STIP and Caltrans duties and powers were described in an earlier section. B6-89

3.17-22, Metropolitan Transportation Commission. Please consider rewording. MTC does not allocate funds under the control of transportation sales tax authorities, which is a very large portion of the funds expended on transportation projects in the Bay Area. The RTP is not an allocation document and in and of itself releases no funds. It does allow projects to proceed to programming and allocation in other documents and programs. B6-90

3.13-17, NVTA. Please consider rewording to be very clear which agency is discussed - and why the other is not. There are two NVTAs in the Napa communities. One is a transportation sales tax authority and the second is a joint powers agency that provides transportation planning, transportation programing, transit operations and the occasional transportation project for the Napa communities. They are independent entities with separate boards. It appears the section is concerned with the joint powers agency, not the transportation sales tax authority. In addition, the Napa communities do not have a CMA, having opted out of the requirement two decades ago. B6-91 B6-92

3.13-24, Significance Criteria, Criterion 5 & 6. Please consider moving the "or" on 6 to 5 and ending 6 with a period. B6-93

5-2, Population, first paragraph, third sentence. Please consider rewording. The stated historical growth rate of 0.16 percent per year is much smaller than the 0.60 percent rate projected. Although the 0.44 difference does not sound like much, it is an increase of 275 percent over the historical rate. That large of a change probably does not qualify as "slightly". What does ABAG predict for St. Helena, not Napa county? B6-94

5-3, Table 5.1-1. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, centering St. Helena and Planning Area over their relative sections of the chart, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Housing Units and Population under St. Helena and under Planning Area (should these be ones?) and deleting the superscript three for Planning Area. B6-95

5.3, Public Facilities and Services, second to the last sentence. Please consider rewording as it implies B6-96

the city owns a solid waste facility. B6-96

5.5, Table 5.1-2. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Jobs (which presently means it applies to all figures on the Jobs row) and explaining how one reasonably presents a ratio with two significant figures when the figures from which the ratio is defined are rounded to the nearest one hundred. B6-97

5.5, Cumulative Analysis, second sentence. Please add a comma after “air quality”. B6-98

5.7, Cumulative Effect on Cultural, Historic and Tribal Resources, last sentence. Please replace “I” with “is”. B6-99

5.9, Wastewater Treatment and Distribution, first sentence. Please consider deleting “other” as it implies that the St. Helena treatment facility is regional in nature. B6-100

Comment Letter B7-A

B7-A-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: December 30, 2018 at 9:30:33 AM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>" <NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>
Subject: FYI - bad reference in appendix to draft EIR

Noah,

B7-A-2

FYI, on pages A-4 and A-5 of the appendix to the draft EIR there are two references to Chalk Lane. The correct name is Chaix Lane.

B7-A-3

Mark

Mark Smithers | Senior Vice President, Finance
Trinchero Family Estates
Office: 1-707-302-3027 | Ext. 2612 | Mobile: 1-707-290-4508
msmithers@tfewines.com<mailto:msmithers@tfewines.com>

Comment Letter B7-B

B7-B-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: December 30, 2018 at 9:30:33 AM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>" <NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>

B7-B-2

Subject: A-14 of the appendix reads "sonoma county"

B7-B-3

Mark Smithers | Senior Vice President, Finance
Trinchero Family Estates
Office: 1-707-302-3027 | Ext. 2612 | Mobile: 1-707-290-4508
msmithers@tfewines.com<mailto:msmithers@tfewines.com>

Comment Letter B7-C

B7-C-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: January 2, 2019 at 5:52:13 PM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>"
<NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>
Cc: Pamela Smithers <psmithrs@comcast.net<mailto:psmithrs@comcast.net>>
Subject: comments to the 2040 General Plan and Draft Environmental Impact Report

Noah,

We hope your day is going well.

We have the following comments with regards to the draft EIR and General Plan.

B7-C-2

Guiding Principles and Objectives

First and foremost, the “guiding principles” of the 2040 General Plan beginning on page 1-14 and summarized in the draft EIR as “objectives,” do not specifically speak to neighborhood livability. Protecting and improving the livability of our neighborhoods should be a top priority and be listed as an important guiding principle and objective of our 2040 General Plan.

Housing and housing impacts

Tables ES-1 and ES-2 of the draft EIR provide build out information. ES-1 provides that 300 additional housing units with an increased population of 700 at 2040 build out. ES-2 suggests 900 additional jobs at build out. This draft GP doesn’t adequately balance anticipated future housing and job growth with infrastructure changes. Additional housing units and jobs will only exasperate the (current) sub-par housing and traffic situation. It is understood that the housing element is currently in the process of update. The GP needs to address the housing issue, and its impacts, head on and not leave it for later. Draft EIR areas of controversy note that traffic impacts from future development will exasperate the existing traffic issues. As such, circulation, local traffic, and neighborhood traffic impacts need strengthened directives within the appropriate GP elements. Planned improvements in the GP need to ensure successful results of better circulation: increased biking, walking, safe routes to school, and additional outside opportunities.

Circulation

The draft GP Circulation Section provides for “potential future road extensions.” The road extensions (better described as connections as they are connecting the town together) are described as “Study Alternatives.” These road connections (including a fully implemented Oak Street connection) have been reviewed and discussed since 1993. In-town traffic and circulation was bad then and has become nearly unbearable. The connections do not need to be “studied” any longer. The GP language should be stronger and note an immediate need to implement our connectivity. Additionally, the noted “special studies” should only be limited to the bike and walking infrastructure associated with the road

B7-C-2

extensions. Any infrastructure improvements should be subject to standard review with no special limitation or additional requirements.

Alternatives to the Proposed Plan in the draft EIR includes transportation network enhancement alternatives, including a full Oak street connection from Grayson to Mitchell. This alternative is absolutely correct, as per the 1993 General Plan. The circulation element needs to be updated and include this full street connection. St Helena needs to improve in-town circulation for it citizens coming in to and out of town. The Oak Street connection from Grayson to Mitchell is not about relieving traffic from SR-29, it is about in-town circulation and, most importantly, reducing local Vehicle Miles Traveled (VMT). If we have any hope of improving our local air quality and addressing our climate impacts we must reduce VMTs within our city limits. Improved circulation and adopting all the street connections included in the previous General Plan, including the Oak Street extension, will help us in these efforts.

Traffic safety and noise in residential neighborhoods

Various elements of the Plan should specifically provide how the City plans to control and mitigate the impacts of traffic noise and safety on neighborhoods. Residents have the right to the peaceful enjoyment of their properties. Plan elements need to ensure that neighborhoods and homes are not degraded by unsafe traffic, noise, air quality, development, and inappropriate zoning or uses contiguous to the streets we live on and where our kids play or go to school. Traffic issues within certain neighborhoods were acknowledged in the 1993 plan and subsequent analysis in 2006 and 2009. The GP needs to be more specific in directing how our in-town and through-town traffic issues will be mitigated to ensure safety and health. Getting folks out of their cars is a high priority of the Draft GP. We cannot accomplish this priority with high traffic streets and speeding cars. The GP needs to adopt stronger more specific guidance on neighborhood traffic issues.

The draft GP Circulation Section is practically silent as to one of the most pressing problems in St Helena now, and likely to grow in the future, and that is, traffic volumes and speeds in residential areas. The Circulation Section states "continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas". The GP does not, but should, address what types of measures could be utilized for traffic calming, what the policies are, and how those policies will be implemented to improve neighborhoods and pedestrian and bicyclist health and safety. The Nov, 2009 Fehr and Peers Transportation Report (included in the Appendices) identified excessive speeding and suggested "traffic calming measures which involve changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut through volumes, in the interest of street safety, livability and other public purposes". The GP should identify specific types of traffic calming strategies for the most impacted cut-though residential neighborhoods; since this issue is predicted to only get worse in the future, metrics which would measure successful implementation could be useful.

Air Quality Issues/Measurements

The draft EIR addresses Air Quality and Energy, Greenhouse Gases, and Climate Change. As the draft EIR notes, both our current status and GP build out violate BAAQMD standards. This is obviously not acceptable. The 2040 GP as drafted is a health risk to current and future residents. The GP needs to address and mitigate these health risks before the Plan is adopted. Potential solutions that should be noted in the GP include limiting pesticide and herbicide use, reducing cultivation to significantly reduce airborne particulate matter, requiring alternative energy for all new construction or significant building improvements and remodeling, requiring all residences, businesses, government facilities to adopt 100%

MCE clean green, reducing cut through traffic and adding new EV charging stations. In the meantime, an air quality monitoring station should be initiated at the SH Primary School. This school is for 4-7 year olds and is adjacent to one of the (now) busiest residential streets in St Helena. This street has become the cut through street for residents and workforce alike, and the children at the school are outside on their playground adjacent to S Crane several times a day. The City needs to mitigate the impacts to these small children. B7-C-2

SHUSD Mitigation Measures Identified in Negative Declaration

The GP should include a plan to require the SHUSD to implement the required traffic mitigation measures associated with the Primary School construction and the Negative Declaration Report the SHUSD issued at that time. The City and SHUSD have allowed the required mitigation measure for the additional school traffic to go unmet. Implementation of the required mitigation measure will help the City achieve its 2040 GP goals of in the areas of Air Quality, Climate Change, Traffic, Safety, Health, and Livability.

Please confirm receipt of this email. B7-C-3

Thank you in advance for your efforts on this very important and long over due project.

Mark and Pam Smithers

This email is sent from an employer address and only represents the thoughts of the sender.
Mark Smithers | Senior Vice President, Finance
Trinchero Family Estates
Office: 1-707-302-3027 | Ext. 2612 | Mobile: 1-707-290-4508
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Comment Letter B8

B8-1

Please consider these written public comments concerning both the General Plan Update and the corresponding Draft Environmental Impact Report. My comments are limited to the statutory requirement that a General Plan Update (GPU) include a map, diagram or other method of showing the inundation areas in the event of the failure of the St Helena levee and/or flood wall.

I have made comments on this subject numerous times during previous comment periods related to General Plan Updates and their corresponding Draft Environmental Impact Reports (DEIRs). The first time this issue was raised was during the public comment period ending in July 2016. The most recent oral comments made prior to the release of the 2040 GPU were at the Joint Meeting of the Planning Commission and the City Council to review the General Plan on August 14, 2018.

B8-2

When the 2040 GPU was released on October 23, 2018, I was out of the country. Upon my return to St Helena I notified Noah Housh by email on 11-20-18 that the updated General Plan Safety Element still did not include the areas of inundation in the event of a levee and/or flood wall failure. The statutory requirement for this appears at Government Code §65302(g)(2)(A)(viii). This requirement is also confirmed in the recently updated version of the Governor's Office of Planning and Research's General Plan Guidelines at page 143.

At the Planning Commission meeting on December 4, 2018, which was agendized for the purpose of taking public comment on the DEIR, I again made oral public comments on the lack of the required levee and flood wall failure areas of inundation. There was some discussion as to whether or not the levee protection map would suffice to satisfy this requirement. I pointed out that the map of the levee protection zones are separately required under Government Code §65302(g)(2)(A)(vii). One of the reasons there is a separate requirement for areas of inundation in the event of a levee or flood wall failure is because the force of the water and the damage it can cause are significantly greater in the even of a levee or flood wall failure than what would happen during a flooding event. The inundation map is not just the converse of the levee protection areas and wouldn't take into account what would happen in the event of a flood wall failure, which is also a requirement of Government Code §65302(g)(2)(A)(viii).

B8-3

The legislature would not have specifically required areas of inundation in the event of a levee and/or flood wall failure if there wasn't a need to have that information. But even if it was not such a requirement, the City should be interested in including that information for both safety and financial reasons.

Not only does the City need the information, but every resident impacted by a potential levee or flood wall failure deserves to know what the potential danger is for them. Especially important is the fact that many of those who would be imperiled by a levee or a flood wall failure are some of the most vulnerable in our community. Vineyard Valley, Hunt's Grove, Meadow Creek Circle and a lot of other areas of the eastern part of the City would be significantly impacted and they all deserve to know what the possibilities are. B8-3

During some of the rain storms in recent years, one of the City's main across-city access points between Highway 29 and the Silverado Trail was destroyed. The Pratt Avenue bridge has remained closed since that time. If there was a flood wall and/or levee failure it likely would cause severe damage to another important access to the Silverado Trail. The Pope Street Bridge is immediately adjacent to the flood wall and is located very close to the levee. A failure of either the levee or the flood wall could jeopardize the viability of and cause severe damage to the Pope Street Bridge, which would be a significant safety problem for the City and all of its residents and visitors.

To further complicate this situation our levee and flood wall are both located in an area of very high and high liquefaction. That information already appears is in the 2040 GPU. Liquefaction is a major and well-known cause of levee failures.

Not only should the General Plan Update include the areas of inundation resulting from a levee and/or flood wall failure, but the Draft Environmental Report should include the potential safety and environmental damage, which could be created when considering the intersection of the levee and flood wall failure inundation map, the liquefaction map (already in the 2040 GPU) and the earthquake map (also included in the 2040 GPU.) For example, this issue should be discussed in the Circulation Element when considering the potential impact of the loss or restriction of the use of the Pope Street Bridge if there is a levee or flood wall failure. There are other areas of the Draft Environmental Impact Report and General Plan Update where these issues should also be discussed. B8-4

Since the land immediately behind the levee is designated medium density residential, the areas of inundation in the Draft Environmental Impact Report must also consider the safety and environmental impacts of any housing being built and asphalt laid behind the levee. It is logical to conclude there would be significantly more damage to the environment if the flood plain behind the levee is built up with housing and asphalt, than the damage that B8-5

what would happen during a levee failure on the current unobstructed flood plain behind the levee. Since this would not be a hypothetical situation since there is a current project planned for that approximate 17 acre site, it must be included in the proposed General Plan Update and Draft Environmental Impact Report. B8-5

Thank you for your consideration. B8-6

Vickie Bradshaw
January 2, 2019

Comment Letter B9

B9-1

From: James Reynolds [mailto:jimpatreynolds01@gmail.com]
Sent: Wednesday, January 02, 2019 1:13 PM
To: Cindy Tzafopoulos <ctzafopoulos@cityofsthelena.org>
Subject: The supposed deadline today for public comments to the General Plan update Environemntal Report and no notice to the public

To: St. Helena City Council via City Clerk January 3, 2019
RE: General Plan 2040 - public comment deadline and notification to the public

Dear Mayor Ellsworth and City Council,
A number of us local residents have been hearing spotty information about a deadline today for us to provide public comments to the Environmental Report for the 2040 General Plan. We are notifying you that many people we know in town cannot find the deadline posted anywhere on the city website. And, we cannot even find anything about submitting comments (examples: how to do it, who to send it to, is there a format to follow, when it's due…). So, is this true?
Some of us may not be computer experts, but quite a few of us searched the city website and see NO notice asking for public comments or a deadline. HOW CAN THE PUBLIC KNOW WE CAN GIVE COMMENTS AND HAVE A DEADLINE WHEN THE CITY AND GP WEBSITE DOES NOT EVEN POST IT? The General Plan will be around for a very long time and will define our city and our childrens city and our grandcildrens city for years and years. You can look on the website for yourselves. We saw nothing. (See below where we printed the image of the Main city website AND the GP website page as it is TODAY). Then, since you are a NEW COUNCIL please start off on the right foot and work hard to make sure you are being transparent and really wanting public input by at least putting it somewhere noticeable on the website.
PLEASE PUT THIS LETTER INTO THE DRAFT EIR AS A COMMENT BECAUSE WE HAVE NOT HAD THE CHANCE TO SEND IN ANYTHING BECAUSE WE DIDN'T KNOW ABOUT IT. We want to make sure it goes on the record that we feel we were not notified.

Thank you very much Council.
Jim and Pat Reynolds, and friends, and neighbors, in St. Helena

B9-2

This is a picture of the General Plan page TODAY

Supporting Documents

St. Helena 2040 General Plan Draft_ October 2018 (24 MB)
St. Helena 2040 General Plan dEIR_ October 2018 (41 MB)
St. Helena 2040 General Plan dEIR_ Appendices_ October 2018 (32 MB)
Notice of Availability- Draft Environmental Impact Report_October 2018 (137 KB)
St. Helena General Plan NOP- April 2018 (637 KB)
St Helena draft 2035 General Plan Update - June 2017 draft (24 MB)
St. Helena draft 2035 General Plan Update - April 2016 draft (36 MB)
Summary of Key Changes - April 2016 (116 KB)
St. Helena General Plan Update Revised Draft EIR (RDEIR) - May 2016 (65 MB)
Notice of Availability - St. Helena RDEIR - June 2016 (50 KB)

This is a picture of the MAIN CITY WEBSITE page TODAY. There is NO notice in Community News about a public comments or a deadline.

Skip to main content

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CALIFORNIA

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St. Helena Community News

- NAPA COUNTY PRESS RELEASE | Freezing temperatures forecasted for Napa County beginning Fri
- PRESS RELEASE | Local Non-Profits Encouraged to Submit Grant Applications to City of St. H
- C-82 Downtown Restrooms (Rebid)
- Notice and application to fill a vacancy for a member of the City Council by appointment

View all News

B9-2

Upcoming Events Calendar

- Bingo Night Hosted by Soroptimist St. Helena Sunrise

  01/18/2019 - 6:00pm

- Martin Luther King Day Holiday

  01/21/2019 - 12:00am

- President's Day Holiday

  02/18/2019 - 12:00am

- Cesar Chavez Day Holiday

  03/31/2019 - 12:00am

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Events Calendar

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a municodeWEB design

Original text

Contribute a better translation

Comment Letter B10

B10-1

PLANNING COMMISSION MEETING EIR COMMENTS SUMMARY

On December 4, 2018, the St. Helena Planning Commission held a regular Planning Commission meeting to receive comments on the Draft EIR for the General Plan Update. The meeting took place at 6:00 pm at 465 Main Street in St. Helena. The agenda, minutes, and video recording for the meeting can be viewed on the City's website at https://sthelena.civicweb.net/Portal/MeetingInformation.aspx?Id=368. Comments received at the meeting are summarized below.

Public Comments

Vicki Bradshaw, Resident

California Government Code Section 65302(g)(1)(A)(VIII) requires cities with a housing element update after 2009 (St. Helena's Housing Element was updated in 2015) with floodwalls and/or levees to show "areas subject to inundation in the event of the failure of the project or non-project levee or floodwall" in the safety element of the general plan, and the Office of Planning and Research recently issued updated general plan guidelines reconfirming the statutory requirement for inclusion of a levee/floodwall failure map.

The Proposed Plan does not currently include a levee/floodwall inundation map, but the map is important to have for safety and financial reasons. Vineyard Valley, Hunt's Grove, Meadowcreek Circle, and other areas in East St. Helena would be directly affected by a levee or floodwall failure and residents have a right to know what potential safety problems they may have. The levee/floodwall is located in areas mapped as having high and very high liquefaction hazard, and liquefaction is a well-known cause of levee and floodwall failure. In the July 25, 2016 public comments to the earlier Draft EIR for the General Plan Update at that time, there was a USGS satellite map of Napa and St. Helena that showed significant ground moving in the area of the levee at the time of the 2014 Napa earthquake, suggesting that had there been rain, there could have been liquefaction in that area with the potential to damage the levee/floodwall.

B10-2

A levee/floodwall failure inundation map is important for financial reasons, as many residents gave up flood insurance when the levee was built, and they have the right to know the potential financial damage they might experience in the event of a levee failure. St. Helena took $12 million in loans and grants from the State to build the Flood Control Project. As a result, the California Legislature passed and the Governor signed AB 1898, codified in California Water Code Section 12748.3, which states that,

> "…The State may provide funds in accordance with section 12585.7 to the City of St. Helena or to local agencies in the County of Napa for the project for flood control on the Napa River in the County of Napa. (c) A county or local agency may receive the funds only if it enters into an agreement with the Department [of Water Resources] pursuant to which the city or the local agency agrees to indemnify and hold and save harmless the State, its officers, agents, and employees, for any and all liability for damages that may result from the project. (d) For the purposes of this section, liability for damages includes, but is not limited to liability for damages relating to the construction or operation of the project or the failure of the project to operate as intended."

The City has indemnified the State in the event of a levee or floodwall failure so the financial responsibility would be entirely the City's, and residents have a right to know the potential damages there could be in the event of a levee/floodwall failure and the resulting potential financial liability of the City. B10-3

Inclusion of the required inundation map in the Proposed Plan should also involve a change to the EIR to discuss safety problems and potential environmental damage considering the intersection of the levee/floodwall failure inundation map, the liquefaction map, and the earthquake map. The EIR should also include comments as to the safety and environmental impacts in the event of a levee failure if housing and asphalt is built behind the levee, as the area would be designated Medium Density Residential, and the currently unobstructed floodplain would be negatively impacted. When the map is included, it should be considered a substantive change and trigger a new public comment period as it would be unfair to insert a map after the close of the comment period and not allow the public to comment on the source and adequacy of the map and EIR analysis.

The Government Code section also requires that cities show levee protection areas, which is different from areas subject to inundation. There is also a requirement that if a dam is present, there should be a dam failure inundation map, which has been included in this EIR. If there are levees with areas subject to inundation, a separate chart or description is required because if a levee fails, the water can be much more forceful and can create more damage than just normal flooding. B10-4

Planning Commission Comments B10-5

John Ponte, Planning Commissioner

- Regarding Mitigation Measure MM-AQ-2, is there a State law or Air District requirement that the submittal be to the Bay Area Air Quality Management District (BAAQMD)? He was concerned that everyone building a new home would have to make the submittal, and if so, he would prefer that the submittal be made locally to the City rather than involving BAAQMD and creating additional requirements and expenses for an applicant.
- Regarding Mitigation Measure MM-AQ-3, he sought to confirm that the number of these point sources would be very low. B10-6
- Regarding Mitigation Measure MM-AQ-6, is this mitigation measure statutory? Under this measure, every building project in the city would have to do a health risk assessment because everyone is within 1,000 of a residence, school, or other sensitive receptors. This could cost lots of money if all projects have to go through this. B10-7
- Regarding MM-GHG-1, why are we writing a Climate Action Plan that might not reach the target that the State has set, which it has not yet set? How would this mitigate the impact, and how would you assess the success of the mitigation since the State has not set targets, goals, or a way of reaching those targets and goals? Ninety percent of control measures would be at the State or regional level anyway, and the City would have a hard time meeting the targets based on what's under its control. B10-8
- Regarding Impact 3.13-2, the Napa Valley Transit Authority (NVTA) is not a congestion management agency (CMA). The County opted out of having a CMA and has no B10-9

congestion management plan (CMP). Since there is no CMP, this impact should be written similar to the airport section. B10-9

- Regarding transportation mitigation measures on page 3.13-44, the mitigation measure call for two new signals. As part of the analysis, the team looked into what happens to the string of signals as a whole with the two added signals. The only problem is that there is at least one intersection where the delay is so high it is reported as >120 seconds, which means that that is the edge of analysis for the software. Beyond 120 seconds could mean 121 seconds or 1,001 seconds. Does this analysis account for delays above 120 seconds? If it is in reality much longer, the mitigation measure can cause a cascading set of failures. For example, at Grayson/Main, the analysis finds that even though the individual intersection looks like it will pass, the delay at Pope/Main is so long that it causes problems at Grayson/Main. If the delay at Pope/Main exceeds the limits of calculations and could cause a cascade of failures. Also, at Main/Sulphur and Main/Pratt, would the mitigation measure make things worse? B10-10
- Regarding MM-TR-3, this reads as though at least one set of extensions must be implemented. In approving the environmental document, are these extensions also being approved? B10-11
- Regarding MM-TR-5, the signalization of Silverado/Pope may not be feasible without replacing the operationally deficient bridge, as the bridge approach is narrow and inadequate. B10-12
- Regarding Impact 3.13-5, there seems to be a disconnect between the conclusion for Impact 3.13-1, which finds a significant and unavoidable impact for level of service, and this conclusion, which is less than significant for emergency access. How are the same set of operationally deficient roads ok for emergency access? If there is a need for a satellite fire station under current conditions, then in 2040, with no through streets on either the west or east side of 29 and worse traffic, how would emergency access for fire, police, and other emergency services not be affected? The analysis indicates congestion and LOS F on 29 and parts of town cannot be reached without 29, so those sections of town could have a problem. This impact may be significant and unavoidable, and mitigation should be the same as MM-TR-3. B10-13

David Knudsen, Planning Commissioner

- Figure 3.13-1: Roadway Classification has an error in the depiction of Vallejo near Sulphur Spring. It should match Figure 3.13-2. B10-14

Lester Hardy, Planning Commissioner

- Regarding Impact 3.13-5, how can there be adequate emergency access if emergency vehicles have to go to Deer Park to access parts of the city? B10-15

Bobbi Monette

- How does the analysis account for significant impacts that could be caused by implementation of the mitigation measures? B10-16

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3 Responses to Comments

This chapter includes responses to comments on environmental issues, in the same order as presented in Chapter 2: Comments on the Draft EIR. The chapter also includes responses to comments received at the Planning Commission meeting on the Draft EIR, which was held on December 4, 2018. Comments received at the meeting pertaining to the Draft EIR are summarized following the public comment letters. The responses are marked with the same number-letter designator as the comment to which they respond.

Responses to written comments received during the public review period and oral comments made at the December 4, 2018 Planning Commission meeting are summarized in the matrix below. The reference number and text of the comments are presented alongside the response for ease of reference. Where the same comment has been made more than once, a response may direct the reader to another numbered comment and response.

Responses focus on comments that raise important environmental issues or pertain to the adequacy of analysis in the Draft EIR or to other aspects pertinent to the potential effects of the Proposed Project on the environment pursuant to CEQA. Comments that address policy issues, opinions or other topics beyond the purview of the Draft EIR or CEQA are noted as such for the public record. Where comments are on the merits of the Proposed Plan rather than on the Draft EIR, these are also noted in the responses. Where appropriate, the information and/or revisions suggested in the comment letters have been incorporated into the Final EIR. Where such revisions are warranted in response to comments on the Draft EIR, deletions are shown in ~~strikethrough~~ and additions are shown <u>underlined</u> in the matrix of comments and responses. Map revisions required in response to comments are noted in the matrix and the revised maps are included at the end of this chapter. Appendix A includes public notices required by CEQA Guidelines Sections 15802 and 15085 provided by the City of St. Helena in support of the response to comment A2-B-1.

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Response to Comments Matrix

Comment ID	Comment	Response
A1-1	Mr. Noah Housh, Director City of St. Helena Planning and Community Department 1480 Main Street St. Helena, CA 94574 Dear Mr. Housh: DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE ST. HELENA GENERAL PLAN UPDATE 2040, SCH# 2010042001 The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft Environmental Impact Report for the St. Helena General Plan Update (Project). The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources. Project Description The proposed project consists of an update of the City's General Plan. The General Plan is a longterm policy document that establishes direction to guide future land use decisions, a framework to ensure the character and quality of development desired by the community, and the processes by which development and land use changes will take place. The General Plan is used _by City staff to review development proposals to ensure that subsequent projects align with the community's vision. The Planning Commission and City Council use the General Plan to guide decision-making that would impact the city's physical environment.	The comment summarizes the Department of Conservations Division of Land Resource Protection's understanding of the project and the agency's responsibility, and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A1-2	Department Comments Although direct conversion of agricultural land is often an unavoidable impact under CEQA analysis, mitigation measures must be considered. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation under CEQA. Rather, the criterion is feasible mitigation that lessens a project's impacts.	The comment acknowledges the finding of a significant and unavoidable impact for Impact 3.2-1, related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (important farmland), and recommends the use of agricultural conservation easements and/or in-lieu fees for mitigation banking as potentially feasible mitigation measures that could reduce the impact. The Draft EIR discusses impacts related to the loss of Farmland under the Proposed Plan on pages 3.2-14 through 3.2-18, citing numerous Proposed Plan policies and implementing actions that mitigate for the loss of Farmland, including policies LU1.3,

Comment ID	Comment	Response
A1-2	All mitigation measures that are potentially feasible should be considered. A measure brought to the attention of the Lead Agency should not be left out unless it is infeasible based on its elements. The Department suggests that the City consider the adoption of an agricultural land mitigation program that will effectively mitigate the conversion of agricultural land. Agricultural conservation easements are an available mitigation tool that the City should consider. The Department highlights easements as a mitigation tool because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and· because they follow an established rationale similar to that of wildlife habitat mitigation. Programs that establish agricultural conservation easements and in-lieu fees for mitigation banking are most effective at conserving comparable quality agricultural land when the easement requirements or fees are determined concurrent with project approval. Should significant time elapse between initial approval and the applicant's receipt of a building or grading permit, conflict may arise over the agricultural quality or value of the land being converted. Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area. A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at: http://www.calandtrusts.org/resources/conserving-californias-harvest/ Another source is the Division's California Farmland Conservancy Program (CFCP), which has participated in bringing about conservation easements	LU5.1, CD4.3, OS2.1, and PR3.2 as well as implmenting actions LU5.B and PS2.H. In spite of these mitigating policies and actions, the Draft EIR finds a significant and unavoidable impact with respect to the loss of Farmland. However, given that all feasible mitigation must be considered to address significant impacts under CEQA, the following additional implementing actionwill be added to the Proposed Plan: LU5.J Establish a Farmland Mitigation Program for future development that requires the permanent protection of farmland at a 1:1 ratio of the amount of farmland converted. The program should include provisions for the acquisition of agricultural conservation easements and payment of in-lieu fees as potential methods of farmland mitigation, where eligible agricultural mitigation lands must be located within the State of California and be of comparable or better soil quality than the land being converted, and in-lieu fees are to be used for the acquisition of a conservation easement, including costs associated with the transaction and long-term maintenance. Nevertheless, even with the addition of this implementing action and implementation of other Proposed Plan policies that would reduce the impact as cited in Section 3.2 of the Draft EIR, the impact would remain significant and unavoidable as agricultural land is a finite and irreplaceable resource. No other feasible mitigation measures are available at this time.

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	throughout the State of California involving many California land trusts. Any other feasible mitigation measures should also be considered.	
A1-3	Conclusion Thank you for giving us the opportunity to comment on the Draft Environmental Impact Report for the St. Helena General Plan Update. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov. Sincerely, Monique Wilber Conservation Program Support Supervisor	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A2-A-1	From: Freeman, Brendon (mailto:bfreeman@napa.lafco.ca.gov] Sent: Thursday, December 13, 2018 2:23 PM To: Noah Housh Cc: Mark Prestwich Subject: St Helena Gen Plan DEIR Good afternoon Noah, Just want to give you a heads up that LAFCO will submit a comment letter on the City's DEIR by the 1/2/19 deadline. I've authorized Ascent Environmental to prepare the letter and they will call you sometime next week to discuss our respective interests.	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A2-A-2	LAFCO' s core interest is ensuring we can rely on the City's EIR to satisfy our CEQA requirements for any potential sphere expansions involving the three study areas. The letter will also mention that the Cortese-Knox-Hertzberg Act includes a unique definition of "prime agricultural land" (Gov Code Section 56064) that differs from FMMP's "prime farmland", so we will request the DEIR at minimum identify prime ag lands within the study areas.	This comment is noted. Please see response to comment A2-B-6 below.
A2-A-3	Finally, we will also request LAFCO be identified as a responsible agency where appropriate, assuming sphere expansions will indeed be pursued.	This comment is noted. Please see response to comments A2-B-1 and A2-B-7 below.

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A2-A-4	Please note I'll be out of the office the next two weeks for vacation, but I'll be checking emails. Feel free to email me with any questions, comments, concerns, or otherwise and I'll do my best to reply ASAP. You can also flesh out any issues with Ascent, as I'm heavily deferring to their professional expertise. Best wishes for a happy holiday season, Brendon Freeman, Executive Officer Local Agency Formation Commission of Napa County 1030 Seminary Street, Suite B Napa, California 94559 Office: (707) 259-8645 Mobile: (707) 363-1783 www.napa.lafco.ca.gov	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A2-B-1	SUBJECT: Comments on the City of St. Helena General Plan Update and Draft Environmental Impact Report. Mr. Housh: On October 23, 2018, the City of St. Helena released the St. Helena General Plan Update 2040 and accompanying Draft Environmental Impact Report (EIR) for public review and comment. Ascent Environmental reviewed both documents for overall adequacy of analysis and sufficiency of evidence, as well as adherence to CEQA requirements for preparation of an EIR. The following comments are provided for consideration. Napa County Local Agency Formation Commission (Napa LAFCO or Commission) appreciates the opportunity to comment on the St. Helena General Plan Update 2040 (project) and accompanying Draft Environmental Impact Report (EIR). Napa LAFCO will use both final documents in fulfilling its regulatory and planning responsibilities under the authority of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. These duties include, but are not limited to, regulating governmental boundary changes through annexations or detachments, approving or disapproving city incorporations, and forming, consolidating, or dissolving special districts. Under the California Environmental Quality Act (CEQA), LAFCO is a Responsible Agency for this project and it is in this role that Napa LAFCO is commenting on this EIR.	The City of St Helena has been working to update the St. Helena General Plan since 2007. Through this time period, the City has published three draft EIRs analyzing the potential environmental impacts of the General Plan Update. Most recently, the City issued an RFP for CEQA consulting services to complete an EIR on the General Plan update on October 3, 2017; the City awarded a contract to consulting firm Dyett and Bhatia on January 9, 2018 at a publically noticed meeting for these services; on February 20, and March 27, 2018, the City held a discussion of the intended scope of this EIR, including discussion of the "study areas"; on March 29, 2018 the Public Notice regarding the City's intended Notice of Preparation (NOP) of the 2040 General Plan EIR was published in both the St. Helena Star and the Napa Valley Register and on April 2, 2018, the City issued a NOP identifying the intent to draft an EIR and requesting input and comments on the scope of that analysis and on April 17, 2018, the City held a publically noticed meeting requesting input and comments on the scope of the EIR analysis; and on December 4, 2018, the City held a public meeting to take verbal comments on the EIR. Copies of notices and advertisements are included in Appendix A of this Final EIR in evidence that the City complied with CEQA Guideline 15087 noticing requirements. It is the understanding of staff that LAFCO has not indicated interest or provided comment on this process at any point during the 12-year update process, until drafting the Dec. 2018, comment letter.

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A2-B-1	Comments on Noticing Procedures The Notice of Preparation (NOP) for the St. Helena General Plan Update 2040 EIR was released for public review on April 2, 2018, and the Notice of Availability (NOA) was released on October 23, 2018. Napa LAFCO does not have a record of receiving the NOP or NOA for the project, as a Responsible Agency we request to be notified on all future proceedings related to this project and other projects where Napa LAFCO may have discretionary authority. The 71-day public review period for the Draft EIR began on October 23, 2018 and ends on January 2, 2019. Although this extends beyond the mandated 45-day public review period, the 71-day public review period includes State holidays observed by members of the public and public agencies, including Napa LAFCO. This does not allow ample time to adequately review the 620-page Draft EIR and appendices. The public review period should be extended past the January 2, 2019 deadline to allow enough time to review the content of the Draft EIR and foster meaningful public discourse.	The Draft EIR's stated 71-day public review period was determined based on the CEQA Guidelines requirement that the public review period be no shorter than 45 days. According to the State of California Department of Human Resources, five state holidays occurred within the 71-day public comment period: Veteran's Day. Thanksgivign Day, the day after Thanksgiving, Christmas Day, and New Year's Day. While observance of these state holidays would have impacted available review time, the stated public review period included 26 additional days beyond the 45 required by the CEQA Guidelines, thus providing more than the standard period of time for review.
A2-B-2	Comments on Chapter 2, Project Description Planning Area The Planning Area for the St. Helena General Plan Update and Draft EIR encompasses approximately 3,594 acres including land within the City of St. Helena, the City's Sphere of Influence (SOI), and three adjacent unincorporated study areas outside of the City's SOI. Collectively, the three unincorporated study areas encompass approximately 450 acres. The location, size, and land use designations for each study area are described below: * Study Area 1: The 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and St. Helena-owned utility infrastructure, including water tanks. Consistent with the Napa County General Plan, the land within Study Area 1 is designated Agriculture, Watershed, and Open Space. * Study Area 2: The 100-acre area is located south of Chaix Lane near the southeastern boundary of the City and includes spray fields currently used to dispose of treated effluent from the City of St. Helena's Wastewater Treatment Plant. Consistent with the Napa County General Plan, the northern portion of Study Area 2 is designated Agriculture, Watershed, and Open Space. The	The comment summarizes LAFCO's understanding of the project's Planning Area. The acreage included within the legal jurisdictional boundary for the City of St. Helena limits and City's SOI was obtained utilizing GIS estimates and is not intended to supercede Napa LAFCO's acreage.

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	southern portion of Study Area 2 is designated Agricultural Resource. * Study Area 3: The 185-acre area is located south of Chaix Lane near the southwestern boundary of the City and includes parcels with existing commercial and residential development along State Route 29. Consistent with the Napa County General Plan, the land within Study Area 3 is designated Agricultural Resource. Napa LAFCO established St. Helena's SOI in 1974 and the last jurisdictional change occurred in 1997. Currently, the City's SOI and City limits are coterminous with the exception of Lower Bell Reservoir, which is within the City's jurisdictional boundary and	
A2-B-2	outside the City's SOI. Napa LAFCO data identifies the City's jurisdictional boundary as 3,046 acres in size. The St. Helena General Plan Update identifies on page 1-10 that the jurisdictional boundary comprises 3,024 acres. Please verify the acreage included within the legal jurisdictional boundary for the City limits and City's SOI. The three study areas included within the City's Planning Area are under the jurisdiction of Napa County and have not been approved for inclusion in the City's SOI. The inclusion of the study areas expands the City's Planning Area beyond that proposed in the 1993 General Plan and extends beyond the City's jurisdictional authority. Approval of any SOI amendment is subject to the Napa LAFCO's discretionary review and approval authority and will be reviewed in accordance with the policies and regulations of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 and Napa LAFCO's General Policy Determinations.	
A2-B-3	The St. Helena General Plan Update Land Use Diagram designates the land within the three study areas as either Agricultural Resource or Agriculture, Watershed, and Open Space, which is consistent with the Napa County General Plan. However, inclusion of these areas in the Planning Area conflicts with the following Napa LAFCO policies related to SOIs: * General Policy Determinations Section III (C)(4) Avoidance of Inclusion of Agricultural and Open-Space Lands: Land specifically designated as agricultural or open-space lands shall not be approved for inclusion within any city's sphere of influence for purposes of urban development unless exceptions are warranted based on the criteria outlined in Section B(3) and (4). * General Policy Determinations Section III (C)(5) Preference for Infill: The	The comment states that inclusion of the study areas within the Planning Area analyzed in the EIR conflicts with LAFCO policies related to SOIs, including General Policy Determinations Section III (C)(5) and Section III(C)(8)(b), and Napa County Measures J and P. Regarding the General Policy Determinations Sections, the inclusion of the three unincorporated study areas in the EIR analysis does not constitute a Sphere of Influence proposal and therefore are not in conflict with these policies. Regarding the Napa County measures, inclusion of the study areas in the Draft EIR analysis does not constitute including them within the City's jurisdictional boundary for purposes of urban development. As stated on

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A2-B-3	Commission will consider the amount of vacant land within the established sphere of influence of a city when considering amendments and updates. The Commission encourages sphere of influence proposals that promote the infill of existing vacant or underdeveloped land thereby maximizing the efficient use of existing city services and infrastructure as well as discouraging urban sprawl. Conversely, the Commission discourages sphere of influence proposals involving vacant or underdeveloped land that requires the extension of urban facilities, utilities, and services where infill is more appropriate. * General Policy Determinations Section III (C)(8)(b) The Commission shall encourage cities to first develop existing vacant and underdeveloped infill lands located within their jurisdictions and spheres of influence to maximize the efficient use of available services and infrastructure and discourage the premature conversion of agricultural and open-space lands to urban uses. The Commission shall encourage the development of vacant or underdeveloped infill lands located within cities' jurisdictions before the annexation of lands requiring the extension of urban facilities, utilities, and services. Pursuant to the aforementioned policies, Napa LAFCO is unlikely to approve inclusion of land specifically designated as agricultural or open-space lands in St. Helena's jurisdictional boundary. In addition, pursuant to Measure J, adopted by Napa County voters in 1990, and Measure P, adopted by Napa County voters in 2008, Napa County lands designated for agricultural use shall not be included within a city's jurisdictional boundary for purposes of urban development. Chapter 2 should be updated to explain the reasoning for including unincorporated agricultural lands within the City's Planning Area.	page 2-3 of the Draft EIR Project Description, the City included the study areas in the EIR analysis in order to document sensitive environmental resources and capacity constraints associated with the study areas, given the adjacency of the study areas, and the City's role in providing limited municipal services to the study areas. As stated on page 2-3, the City recognizes that it does not have jurisdiction in areas outside of City limits, including the unincorporated study areas. Thus, the Draft EIR does not conflict with Measure J or Measure P. Cities often consider the impacts of proposed General Plan policies on areas outside of their jurisdiction or spheres of influence where the areas bear relation to the cities' planning, consistent with California Government Code Section 65300. As previously stated, the Draft EIR assesses potential impacts of the City's General Plan on these study areas due to the presence of adjacent environmental resources and the provision of City services to the study areas, not for any proposed expansion of the current Sphere of Influence, Annexation or planned development of these proeprties. This consistency analysis has been added to the discussion under Impact 3.10-2 in Section 3.10: Land Use, Population, and Housing: "Conflicts with Applicable Land Use Plans, Policies, and Regulations from other Jurisdictions and Regulatory Agencies The Proposed Plan would not conflict with any applicable land use plans, policies, or regulations of outside agencies with jurisdiction in St. Helena. The City of St. Helena is the primary agency with jurisdiction over the city limits, and the Proposed Plan would represent the primary land use plan applicable to the area. In addition to the City of St. Helena, the CPUC has jurisdiction over the railroad right-of-way and Napa County has jurisdiction over the study areas located in unincorporated Napa County. As the Proposed Plan does not encourage any development in the railroad right-of-way or in the three study areas, the Proposed Plan does not conflict with other agency's plans, policies, or regulations. The inclusion of the three unincorporated study areas in the Proposed Plan does not constitute a Sphere of Influence proposal and therefore would not conflict with LAFCO policies related to SOIs, including General Policy Determinations Section III (C)(5) and Section III(C)(8)(b), and Napa County Measures J and P. Regarding the Napa County measures, inclusion of the study areas in the Proposed Plan does not constitute including them

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		within the City's jurisdictional boundary for purposes of urban development. The study areas are included in this analysis in order to document sensitive environmental resources and capacity constraints associated with the study areas, given the adjacency of the study areas, and the City's role in providing limited municipal services to the study areas. The City recognizes that it does not have jurisdiction in areas outside of City limits, including the unincorporated study areas. Thus, the Proposed Plan and Draft EIR do not conflict with Measure J or Measure P."
A2-B-4	Buildout Under the Proposed Plan Table 2.3-3 on page 2-21 of the Draft EIR includes potential residential development within the Planning Area through the year 2040. Under the "St. Helena" subheading, total residential development at buildout is estimated to be 3,100 units. However, the Existing total (2,700 units) and Future Development total (300 units) add up to 3,000 units. Under the "Study Areas" subheading, total residential development at buildout is estimated to be 200 units. However, the Existing total (200 units) and Future Development total (100 units) add up to 300 units. The table should be updated to clarify the amount of residential development proposed. Table 2.3-4 on page 2-21 of the Draft EIR includes projected population within the Planning Area by 2040. Under the "Study Areas" subheading, the total population is estimated to be 700 residents. However, the Existing total (600 residents) and Future Development total (200 residents) add up to 800 residents. Under the "Planning Area Total" subheading, the Existing total is estimated to be 6,400 residents. However, the St. Helena total (5,900 residents) and Study Areas total (600 residents) add up to 6,500 residents. The table should be updated to clarify the projected population estimates.	Typographical errors in Tables 2.3-3, 2.3-4, and 2.3-5 of Chapter 2: Project Description of the EIR have been corrected to reflect buildout totals used in the analysis. Please see also response to comment A-3-B-10. As noted in each table, figures are rounded to the nearest hundred and may not sum due to rounding. Therefore, estimated totals within Tables 2.3-3 and 2.3-4 area accurate and no change is necessary. Under the "St. Helena" subheading of Table 2.3-4 on page 2-21 of the DEIR, existing population has been revised to 5,800 jobs to accurately estimate the calculated existing total of 5,839 jobs. Under the "St. Helena" subheading of Table 2.3-5 on page 2-22 of the DEIR, total jobs at buildout is now estimated to be 6,400 jobs. Under the "Planning Area Total" subheading of Table 2.3-5, future development is now estimated to be 1,100 jobs and total jobs at buildout is estimated to be 7,000 jobs.
A2-B-4	Table 2.3-5 on page 2-22 of the Draft EIR includes projected number of future jobs within the Planning Area through the year 2040. Under the "St. Helena" subheading, the total jobs at buildout is estimated to be 5,900. However, the Existing total (5,400 jobs) and Future Development total (900 jobs) add up to 6,300 jobs. Under the "Study Areas" subheading, the total jobs at buildout is estimated to be 1,100. However, the Existing total (500 jobs) and Future Development total (100 jobs) add up to 600 jobs. Under the "Planning Area Total" subheading, the total jobs at buildout is estimated to be 7,000. However, the Existing total (6,400 jobs) and Future Development (900 jobs) add up to 7,300 jobs. The table should be updated to clarify the projected number of jobs.	

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A2-B-5	Comments on Chapter 3.2, Agricultural Resources Physical Setting Figure 3.2-1 on page 3.2-3 of the Draft EIR identifies existing Agricultural Land Uses within the Planning Area. Land within the three study areas are shaded a light peach color. This color designation is not included in the figure legend. The figure legend should be updated to include all color designations.	Figure 3.2-1 has been revised to include all color designations in the legend.
A2-B-6	Chapter 3.2, "Agricultural Resources," of the Draft EIR, relies on the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) to identify important farmland within the Planning Area. Although FMMP is a great resource of information related to statewide important farmland resources, LAFCOs are directed by the State Legislature in Government Code Section 56001 to protect and conserve prime agricultural resources: "The Legislature finds and declares that it is the policy of the state to encourage orderly growth and development which are essential to the social, fiscal, and economic well-being of the state. The Legislature recognizes that the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with sometimes competing state interests of discouraging urban sprawl, preserving open-space and prime agricultural lands, and efficiently extending government services. …" Prime Agricultural lands are defined according to Government Code Section 56064 as follows: "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications: (a)Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible. (b) Land that qualifies for rating 80 through 100 Storie Index Rating. (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.	The comment notes that while the analysis in the Draft EIR discusses impacts with respect to Farmland as mapped by the FMMP, it also asserts that that analysis does not consider Prime Farmland as defined by LAFCO. Further, the comment provides maps of the Planning Area (Figures 1 and 2) that identify areas of important farmland as defined under Government Code Section 56064. When comparing Figure 1 and Figure 2 (provided by LAFCO) with Figure 3.2-2 on page 3.2-4 of the Draft EIR, the respective designations of "Grade 1 - Excellent" and "Grade 2 - Good," "Class 1" and "Class 2" Irrigated Capability, and "Prime Farmland," "Farmland of Statewide Importance," and "Farmland of Local Importance" follow almost identical patterns across the Planning Area. Discrepancies arise for two reasons. First, Figure 3.2-2 identifies important farmland resources by each parcel while Figures 1 and 2 utilize generalized boundaries. Thus, Figure 3.2-2 appears to cover less land due to parcel boundaries despite identifying the same important farmland resources in the Planning Area as the figures cited in this comment. Second, Figures 1 and 2 identify important farmland resources using irrigated capability and the Storie Index Rating. Figure 3.2-2 does in fact identify prime agricultural land in addition to other important farmland resources, but also identifies urban and built-up land that coincides with farmland identified as Grade 1, Grade 2, Class 1, and Class 2 on Figures 1 and 2 provided by LAFCO. Given that these addiitonal areas identified by LAFCO are designated as "Urban" land in Figure 3.2-2 and are already developed with urban uses, it would not be reasonable to identify such parcels as important farmland resources. Therefore, identification of Prime Farmland pursuant to the LAFCO definition does not identify additional farmland in the Planing Area over and above that which was identfied in the Draft EIR. Addtionally, the City notes that the General Plan Update Land Use and Growth Management Element includes multiple policies that encourage infill and redevelopment and preservation of existing

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	(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre. (e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years. Based on direction of the State Legislature through the Cortese-Knox Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO evaluates the importance of farmland based on the methodology outlined in Government Code Section 56064. As shown in Figure 1, the Planning Area contains land designated as Grade 1 – Excellent. In addition, as shown on Figure 2, the Planning Area contains soils designated as USDA, Natural Resources Conservation Service Class I and Class II. Chapter 3.2 of the EIR should be updated to include an evaluation of the land within the City limits or SOI expansion areas that meets the definition of prime agricultural land as described in Government Code Section 56064. This analysis will provide members of the public, Napa, LAFCO, and other decision makings bodies with a comprehensive description of existing important agricultural lands within the Planning Area and potential impacts that may result from the adoption and implementation of the St. Helena General Plan Update 2040. This type of analysis would provide Napa LAFCO the appropriate information for their potential consideration of any future SOI amendment requests.	agricultural resources, and therefore supports the goal of LAFCO to protect existing prime agricultural resource while accounting for growth needs. Accordingly, the findings of the Draft EIR do not change; however, the text of Section 3.2 of the Draft EIR is hereby updated to identify Prime Farmland as defined by LAFCO. The definition of Prime Farmland as provided by LAFCO has been added to the Regulatory Settings of Section 3.2 of the DEIR. The discussion of Impact 3.2-1 has been revised as follows: "Implementation of the Proposed Plan would result in a significant impact if future development occurring in accordance with the Proposed Plan's land use designations and policies would convert Important Farmland to non-agricultural uses. Table 3.2-1 summarizes Important Farmland in the Planning Area as identified by the FMMP. The largest category of farmland classified by the FMMP in the Planning Area is Prime Farmland, which comprises 900 acres or 29 percent of the land in the city identified as agriculture by the FMMP, as well as 1060 acres or 36 percent of land identified as agriculture in the study areas. Additionally, there are nearly 282 acres of Farmland of Statewide Importance, 75 acres of Farmland of Local Importance, and 38 acres of Unique Farmland in the Planning Area, as shown in Figure 3.2-2. Prime farmland is also defined by LAFCO of Napa County as land that qualifies for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, or land that qualifies for rating 80 through 100 Storie Index Rating. The USDA Natural Resources Conservation Service and Storie Index Rating land classifications are both based on soil characteristics that govern the land's potential utilization and productivity capacity. The Planning Area contains land designated as Grade 1 and soils designated as USDA Natural Resources Conservation Service Class I and II. The land identified under these designations is almost identical to the Important Farmland identified by FMMP in Figure 3.2-2. Figure 3.2-2 identifies important farmland resources by each parcel while the USDA Natural Resources Conservation Service and Storie Index Rating land classifications utilize generalized boundaries. Thus, Figure 3.2-2 appears to cover less land due to parcel boundaries despite identifying the same important farmland resources in the Planning Area as defined by LAFCO. Additionally, Figure 3.2-2 identifies prime agricultural land and other important farmland resources, as described above, but also identifies urban

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		and built-up land that coincides with prime farmland as defined by LAFCO. Given that these additional areas identified by LAFCO are designated as "Urban" land in Figure 3.2-2 and are already developed with urban uses, it would not be reasonable to identify such parcels as important farmland resources. Therefore, identification of Prime Farmland pursuant to the LAFCO definition does not identify additional farmland in the Planning Area over and above that which was identified, and the FMMP farmland classifications are sufficient."
A2-B-7	Comments on Chapter 3.10, Land Use, Population, and Housing Impact discussion 3.10-3 on page 3.10-27 of the Draft EIR, concludes that the project would not conflict with applicable land use plans, policies, or regulations from other agencies with jurisdiction in the Planning Area. As discussed above, pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO is responsible for the administration of the orderly formation and development of local governmental agencies and services, preservation of agricultural and open-space resources, and discouraging urban sprawl. Therefore, the impact discussion should be revised to provide a consistency analysis with Napa LAFCO policies related to SOIs and the adopted 2008 Municipal Service Review for the City of St. Helena.	The comment states that the analysis for Impact 3.10-3 should include a discussion of the Proposed Plan's consistency with the Napa LAFCO policies related to SOIs and the 2008 Municipal Service Review for the City of St. Helena. The Regulatory Setting, Relevant Policies and Implementing Actions, and Impact 3.10-2 have been revised to include this discussion (Impact 3.10-3 relates to habitat conservation plans and natural community conservation plans and is not the appropriate location for this analysis) as follows: "State Regulations … Napa County Local Agency Formation Commission (LAFCO) The Napa County Local Agency Formation Commission (LAFCo) is an independent County agency established by State law. LAFCo has approval authority regarding changes in organization to cities, including annexations, detachments, new formations, and incorporations. LAFCo approval is necessary for changes to St. Helena's city limits or Sphere of Influence. Action by LAFCo in 2009 modified the Sphere of Influence to be co-terminus with the city limits. … Local Regulations … California Public Utilities Commission (CPUC) The California Public Utilities Commissions (CPUC) has jurisdiction over certain uses involving railroad right-of-way within St. Helena. CPUC regulates the safety of both publicly- and privately- owned railroad and rail transit companies, agencies, and rail crossings. The City has some authority

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		to regulate specific uses and activities.
A2-B-7		Napa County Local Agency Formation Commission (LAFCO) The Napa County Local Agency Formation Commission (LAFCO) is an independent County agency established by State law. LAFCO has approval authority regarding changes in organization to cities, including annexations, detachments, new formations, and incorporations. LAFCO approval is necessary for changes to St. Helena's city limits or Sphere of Influence. To help inform the sphere review process, LAFCO is responsible for preparing municipal service reviews to determine the level and range of governmental services provided in the region. As of February 2019, the most recently adopted municipal service review for the City of St. Helena was conducted in 2008. The municipal service review recommended that the City's SOI be expanded to include a study area long Howell Mountain Road, and that it exclude a study area containing the City's spray fields (identical to the area considered in this EIR as Study Area 2). In 2009, LAFCO modified the City's SOI to its current boundaries. In August 2017, LAFCO released a draft municipal service review update, which, as of February 2019, has not been finalized or adopted. LAFCO General Policy Determinations LAFCO has adopted a series of policies outlining its objectives and standards as it relates to fulfilling its regulatory and planning responsibilities. This includes establishing specific factors and procedures in reviewing, and processing boundary changes, sphere of influence amendments, outside service agreements, and municipal service reviews. Section III of the General Policy Determinations includes the Policies Concerning Spheres of Influence. Section III(B) establishes the General Guidelines for the Review of Spheres of Influence, including land use criteria, municipal service criteria, and the removal of land from an agency's SOI. Section III(C) addresses City Spheres of Influence, with considerations for the establishment, amendment, or update of a city's sphere of influence, including promoting orderly urban growth and development, reflecting existing and planned service capacities, exclusion of land designated as agricultural or open space, maximizing infill of existing vacant or underdeveloped land, and discouraging the extension of facilities and services where infill is more appropriate. Section III(C) also states that while an SOI shall generally be used to guide annexations,

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		inclusion of land within an SOI does not indicate automatic approval of annexation proposals; that for annexations proposed outside of a city's SOI, a change to the SOI must be considered and resolved prior to action on the annexation; and that SOIs shall be developed by LAFCO in cooperation with input from cities and the County. Section VII includes Policies Concerning Annexations, including policies concerning island annexations and municipally-owned land, and policies to facilitate concurrent annexations to cities and special districts where appropriate. … RELEVANT POLICIES AND IMPLEMENTING ACTIONS The following policies and implementing actions of the General Plan Update are relevant to land use and planning impacts as defined by the significance criteria above: Land Use and Growth Management Element … •LU1.E Restrict the use of housing units as short-term rentals, except for those allowed by the Short-Term Rental Ordinance. LU2.1 Promote a mix of housing types and price ranges that are consistent with the Housing Element RHNA categories of housing affordability. •LU1.G Work with property owners and the Napa County Local Agency Formation Commission to study the benefits of annexing lands adjacent to the City of St. Helena, where the City owns and operates critical municipal infrastructure, including utility infrastructure, and/or provides municipal services, or where the provision of municipal services to replace wells and aging sceptic systems would improve public health. •LU2.5Encourage the development of higher density housing in areas near the center of the city and close to recreation and services, such as transit, retail, and public facilities. … •LU2.AUpdate the zoning ordinance and map to be compatible with the General Plan land use map and designations. •LU3.6Continue to work with the County of Napa to review land use and design changes for projects in the unincorporated areas at the City's gateways. •LU3.BEstablish an inventory of all non-residential uses in the city and a

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		program for monitoring future non-residential development. Combine this inventory with efforts to balance jobs and housing. … Conflicts with Applicable Land Use Plans, Policies, and Regulations from other Jurisdictions and Regulatory Agencies The Proposed Plan would not conflict with any applicable land use plans, policies, or regulations of outside agencies with jurisdiction in St. Helena. The City of St. Helena is the primary agency with jurisdiction over the city limits, and the Proposed Plan would represent the primary land use plan applicable to the area. In addition to the City of St. Helena, the CPUC has jurisdiction over the railroad right-of-way and Napa County has jurisdiction over the study areas located in unincorporated Napa County. As the Proposed Plan does not encourage any development in the railroad right-of-way or in the three study areas, the Proposed Plan does not conflict with other agency's plans, policies, or regulations Potential development outlined in the Proposed Plan (approximately 332 new housing units in the city by 2040) is also consistent with ABAG's RHNA. Policies and implementing actions included in the Proposed Plan, such as LU1.D and LU2.1 would limit the rate of residential development, while providing for development of affordable housing, at a rate that exceeds the RHNA for the City of St. Helena. In addition, the Proposed Plan would not conflict with any applicable land use plans, policies, or regulations of the County or other agencies with jurisdiction outside of city limits. As St. Helena does not have jurisdiction on lands outside of its city limits, Proposed Plan policies would not apply in those unincorporated areas. In general, Proposed Plan policies promote cooperation between the City and other agencies such as LAFCO and Napa County regarding land use decisions such as potential annexations (Implementing Action LU1.G) and land use and design changes in unincorporated areas adjacent to the city's gateways (Policy LU3.6), consistent with LAFCO's General Policy Determinations and the Napa County General Plan. Further, the Proposed Plan's policies promoting infill through the ULL and the designation of most areas along the edges of the city as Agriculture, Open Space, or Woodlands and Watershed are consistent with Napa County's designation of lands surrounding the city as Agricultural Resource or Agriculture, Watershed, and Open Space.

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		minimizing the potential for land use conflicts at the city limits. Due to consistency with existing plans, policies, and regulations from other agencies with jurisdiction in the Planning Area, as well as policies and implementing actions within the Proposed Plan, there is no impact resulting from a conflict with an applicable land use plan, policy, or regulation."
A2-B-8	Description of Alternatives According to the second paragraph under subheading, "No Project Alternative," on page 4-2 of the Draft EIR, the No Project Alternative would result in approximately 460 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR, the No Project Alternative would result in approximately 560 new residents and 1,380 new jobs. This section should be updated to clarify growth projections under the No Project Alternative. According to the third paragraph under subheading, "Transportation Network Enhancement Alternative," on page 4-3 of the Draft EIR, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, 335 new housing units, and 935 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR the Transportation Network Enhancement Alternative would result in approximately 900 new residents, 400 new housing units, and 1,100 new jobs. This section should be updated to clarify growth projections under the Transportation Network Enhancement Alternative.	This comment refers to growth projections under the No Project Alternative for the entire planning area shown in Table 4.2-1 on page 4-3 of the DEIR. The paragraphs mentioned discusses growth only within the City of St. Helena, given that growth in the Study Areas would be the same as under the Proposed Plan. Additionally, Table 4.2-1 utilizes rounded estimates to provide generalized comparisons of the similarities and differences between each alternative and existing conditions. The first half of the comment highlights a discrepancy in this section with Table 4.2-1 concerning population growth within the city of St. Helena and job growth within the study areas under the No Project Alternative. This section has been updated as follows: "Overall, the No Project Alternative is projected to result in approximately ~~460~~ 360 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. Accounting for growth in the unincorporated study areas under the Napa County General Plan, a total of approximately 600 new jobs is anticipated in the Study Areas by 2040. Population and housing ~~G~~growth in the Study Areas would be the same as under the Proposed Plan." The second half of the comment refers to growth projections for the entire planning area, while the sentence refers to rounded growth projections for only the City of St. Helena. The section has been revised as follows to ensure consistent rounding in the chapter: "Overall, as with the Proposed Plan, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, ~~335~~ 340 housing units, and ~~935~~ 940 new jobs in St. Helena by 2040. Growth in the Study Areas would be the same as under the Proposed Plan." A note has been added to Table 4.2-1 to clarify rounding discrepacies: "Note: Figures may not sum due to rounding." No further response is necessary.
A2-B-9	Comparative Impact Analysis of Alternatives State CEQA Guidelines Section 15126.6(a) states that: "An EIR shall describe a range of reasonable alternatives to the project, or the	The City notes that CEQA Section 15162.6 also states that "an EIR need not consider every conceivable alternative to a project;" that "an EIR is not required to consider alternatives which are infeasible;" and that "there is no

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	location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives…" Chapter 4, "Alternatives Analysis," of the Draft EIR identifies one alternative, the Transportation Network Enhancement Alternative, other than the mandated No Project Alternative. This does not constitute a reasonable range of alternatives to the project as directed by the State CEQA Guidelines. In the spirit of full disclosure and consistent with CEQA Guidelines Section 15126.6 (c), Chapter 4 should be updated to explain why no other feasible alternatives were considered or proposed as part of the alternatives analysis.	ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." Given that the significant impacts of the Proposed Plan are generally cumulative in nature, related to regional traffic, air quality, and GHG emissions factors beyond the control of the City, there are relatively few feasible alternatives available to the City that would also attain the most basic objectives of the Proposed Plan. However, the City notes that in developing alternatives for the Draft EIR, a Reduced Development Alternative was considered but found infeasible and not carried forward. In order to effectively reduce the significant traffic, air quality and GHG emissions impacts of the Proposed Plan, the Reduced Development Alternative would have needed to substantially curtail residential growth in the City such that St. Helena would not have been able to meet it RHNA obligations. As such, this alternative was rejected as infeasible.
A2-B-10	According to the last paragraph on page 4-2 of the Draft EIR, the Transportation Network Enhancement Alternative would reduce significant and unavoidable impacts related to vehicle congestion on State Route 29 in St. Helena. However, as described on page 4-21 of the EIR, the mitigation measures would require actions from the California Department of Transportation which is not subject to the City's control; therefore, the impact would remain significant and unavoidable. In addition, the alternative would result in new significant impacts at three intersections. Chapter 4 should be updated to clarify that the project alternative would not reduce significant and unavoidable impacts with respect to transportation, rather it would result in environmental tradeoffs.	Please see response to comment A2-B-11. This alternative does in fact avoid or substantially lessen the transportation-related impacts of the Proposed Plan, although analysis found that impacts related to other topics would be greater. It is the purpose of this analysis to explore how an alternative may lessen or intensify potential impacts across all topic areas relative to the Proposed Plan to provide decision-makers with sufficient information about both the alternative and the Proposed Plan.
A2-B-11	According to page 4-29 of the Draft EIR, the Transportation Network Enhancement Alternative is the environmentally superior alternative. However, as shown on Table 4.4-1, the Transportation Network Enhancement Alternative would worsen impacts with respect to flood hazards and permanent ambient noise. In addition, when compared to the project all other impacts remained the same. Contradictory to State CEQA Guidelines Section 15126.6(a), the alternative does not avoid or substantially lessen any of the significant effects of the project but rather worsens impacts. Chapter 4 should be updated to include an analysis of alternatives that avoid or substantially lessen project impacts. This analysis will provide the decision-making bodies, Napa LAFCO, and members of the public with sufficient information for consideration prior to the adoption and certification of the St. Helena General Plan Update and Draft EIR.	The comment states that the analysis of the Transportation Network Enhancement Alternative is in contradiction to CEQA Guidelines Section 15126.6(a), which states that the EIR should analyze a reasonable range of alternatives which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The comment states that the alternative does not avoid or substantially lessen any of the significant effects of the project but rather worsens impacts. As discussed in the Alternatives chapter, the Transportation Network Enhancement Alternative was selected due to its potential to avoid or substantially lessen significant effects of the Proposed Plan, specifically, to reduce the significance of Impact 3.13-1 by relieving relieve vehicle

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		congestion and queuing on SR-29. While the alternative would still be considered to have a significant and unavoidable impact, it was found to have fewer intersection impacts than the Proposed Plan, and would not have the queue spillback impacts of the Proposed Plan. Thus, this alternative does in fact avoid or substantially lessen the transportation-related impacts of the Proposed Plan, although analysis found that impacts related to other topics would be greater. It is the purpose of this analysis to explore how an alternative may lessen or intensify potential impacts across all topic areas relative to the Proposed Plan to provide decision-makers with sufficient information about both the alternative and the Proposed Plan.
A2-B-12	Please contact me with any questions by telephone at (707) 259-8645 or by e-mail at bfreeman@napa.lafco.ca.gov. Sincerely, Brendon Freeman Executive Officer. Cc: David Morrison, County of Napa Planning, Building & Environmental Services Director	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A2-B-13	Attachments: 2 maps of study areas	The attachments were provided in support of comment A2-B-6 and are noted.
A3-A-1	City of St. Helena 2040 General Plan Update Draft Environmental Impact Report Request for Extension of Comment Period. Dear Noah; Thank you for providing Napa County an opportunity to comment on the draft St. Helena 2040 General Plan Update (Update). Napa County has several significant concerns with the most recent version of the Update, and requesting that the comment period on your Draft Environmental Impact Report (DEIR) be extended to provide time to engage in collaborative discussion seeking alignment of City and County objectives. A 120-day extension is requested. We request that a determination for an extension be made prior to 5:00 p.m. on December 21, 2018. To the best of my knowledge, Napa County has never commented on any general plan environmental document prepared by the cities and town of Napa County, and instead we have addressed issues through dialogue focused on finding mutually-agreeable solutions. We are requesting that dialogue commence on several aspects of the proposed Update including, but not limited	The comment requested a 120-day extension of the public review period for the Draft EIR. See response to comment A2-B-1. The City responded at the time the comment was received to inform the commenter that there would be no change to the stated 71-day public review period.

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	to, the Study Areas located outside of the existing city limits, housing, circulation, emergency services, water and wastewater facilities, and possibly climate action planning.	
A3-A-2	As you may be aware, the County is in the midst of preparing a Strategic Plan. Throughout our community engagement process, we have consistently heard that the cities, town and County should be working together, working as partners to benefit our entire community. This necessary partnership step has not yet occurred with your Update. For example, the three very selective Study Areas located outside of the city limits and your Urban Limit Line have been included in the most recent draft of the Update without discussion between our agencies. Although the Update states that these areas are being studied for "informational purposes only" (Update, page 1-12), it is evident that the selective Study Area boundaries, and draft Policies LUI.G and LUI.H indicate the City's intent is to pursue annexation of these areas. The County has no issue with the City conducting meaningful analysis of unincorporated lands surrounding the community to inform the public and decision makers, but that is not what is occurring with these the Study Areas. The boundaries of the Study Areas do not align with any of the reasons given for studying these select areas. The Draft Update implies that these areas must be studied because the City provides utilities and emergency services. Those statement are inaccurate. City water service boundaries, and fire mutual aid boundaries extend far beyonq the Study Areas (see attached maps). Police and fire services are for mutual aid. The City is not the sole emergency service provider as is implied. Numerous properties within the Study Area boundaries do not receive City water service, including all of Study Area 2 which is the City-owned sewage treatment plant spray fields. The City provides no sewer service to any of these areas. The only obvious determining factor for the boundaries of Study Areas 1 and 3 is that they align quite strategically with several long-established major revenue generating developments. Smart land use planning principles dictate that the City should focus on expansion of urban growth areas within the city limits before considering expansion of the city limits.	The comment regards the inclusion of the study areas in the Draft General Plan Update. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary. Please see also response to comment A2-B-3.
A3-A-3	The latest draft of the Circulation Element calls for a number of new traffic lights, most notably on Silverado Trail. Adding traffic lights without expanding internal road network is not a solution to existing or future traffic conditions. This idea will likely result in greater congestion as well as have a negative ripple effect on County and State roadways.	The purpose of signalization is to better balance right-of-way control for all motorists at an intersection, thus reducing system-wide delay. Generally, signalized intersections have a higher capacity as a whole versus stop-controlled intersections. Additionally, signalization may provide a secondary benefit to safety as it may reduce unsafe driver decisions associated with long

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		delays at stop signs. The installation of signals at the locations noted in the EIR would return intersection operations to acceptable operations (LOS D or better), which is indicative of minimal congestion.
A3-A-4	The City's high home values do not allow significant opportunities for lower wage service workers to reside in the community, and results significant commute traffic through unincorporated areas.	The comment is noted. The General Plan Update Housing Element includes multiple policies and implementing actions aimed at prioritizing and streamlining the development of affordable and workforce housing. Proposed Plan policy LU2.1 also would promote a mix of housing types and price ranges that are consistent with the Housing Element RHNA categories of housing affordability. Additionally, the DEIR does consider trips that begin within the Planning Area and end outside of the Planning Area, and vice versa, which accounts for impacts on commute traffic as shown on page 3.13-46 and in Table 3.13-6. Impact 3.13-1 finds that implementation of the Proposed Plan would result in a significant and unavoidable impact on the effectiveness of the circulation system.
A3-A-5	New development called for in the Update will increase vehicle load within unincorporated areas that has not been satisfactorily addressed in the DEIR. Our agencies need to find a common vision on circulation before the DEIR is certified.	This comment is noted. Please see response to comment A3-B-14.
A3-A-6	The County would like to explore partnering on efficiencies in City services. We have very successful long running partnerships with the City of American Canyon providing law enforcement services and with the Town of Yountville providing both law and fire services that may merit consideration by St. Helena. As you know, staffing is the single greatest demand placed on local agency budgets, and the degree in which an agency can control those costs reduces pressure on the need to grow revenues. This salary/revenue relationship places a great deal of stress on the City's overarching goal to maintain St. Helena's small town character. Partnering on affordable housing appears to be of mutual benefit to our agencies. The Update's time horizon is 2040, but housing allocations are only planned through 2023 (in accordance with State mandated housing cycles). It is likely that both St. Helena's and the County's Regional Housing Needs Allocation (RNHA) will be considerably larger in the next housing cycle starting 2023. The City has very limited ability to generate housing trust fund revenue	The comment expresses interest in partnering with the City of St. Helena on City services and affordable housing, and recognizes the budgetary restraints placed on the City. The comment states that underdeveloped property within city limits should be developed before jurisdiction expansion is considered. As stated on page 2-3 of the Draft EIR Project Description, the City included study areas in the analysis in order to document sensitive environmental resources and regulatory of capacity constraints associated with the study areas, given the adjacency of the study areas, and the City's role in providing limited municipal services to the study areas. Inclusion of the study areas in the Draft EIR analysis does not constitute expansion of the City's jurisdictional boundary for purposes of urban development; rather, multiple General Plan policies promote infill development.

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	through development impact fees. The County has limited areas where new housing can be placed outside of preserved agricultural lands, and the City has vast tracks of underdeveloped property within the city limits. Those areas should develop before any consideration of city limit expansion is undertaken. Some of those areas may be suitable for housing. A shared vision addressing affordable housing needs through the horizon year of your Update appears to be of critical importance to both of our agencies.	
A3-A-7	We understand that the City may be anxious to complete the Update. We believe our request for extension of the DEIR comment period allowing time to partner on inter-jurisdictional issues is the most expedient and cost efficient path to successfully completing the Update. We look forward to meeting with you at your earliest convenience once extension of your DEIR comment period has occurred. Sincerely, David Morrison Director of Planning Building and Environmental Services	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A3-A-8	St. Helena Water Service Area Exhibit, Napa County-St. Helena Mutual Aid Exhibit	The attachments were provided in support of comment A3-A-2 and are noted.
A3-B-1	Dear Mr. Housh; Napa County is in receipt of your December 21, 2018 email denying my request to extend the comment period on the Draft Environmental Impact Report (DEIR) for the City of St. Helena (City) 2040 General Plan Update (Update). The time to review the DEIR has been constrained by the holidays; however, I have strong reservations about several aspects of the Update and DEIR. I believe that it would be best to address these issues through direct dialogue, but given the denial of the extension request, I am compelled to include my concerns as comment on the adequacy of the DEIR. Furthermore, the County of Napa has recently completed an unprecedented community outreach effort to develop a three-year strategic plan. In our nearly 40 community meetings, collaboration between the County and the cities and town was a reoccurring theme in many of the conversations. The County sees St. Helena's General Plan as an opportunity to collaborate and we request further engagement and collaboration on the issues outlined in this letter. Both the Update and DEIR have serious issues that should preclude their adoption and certification until matters have been resolved to our mutual	The comment acknowledges receipt of the City's response to the County of Napa's December 19, 2018 comment (see letter A3-A) stating that no change would be made to the stated 71-day public review period for the Draft EIR. It does not address the adequacy of the DIER; thus, no response is necessary.

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	satisfaction. Napa County's comments are provided in detail below. However, in general, our primary concerns can be summarized as follows:	
A3-B-2	1. There is inconsistency between many of the stated policies in the draft documents and in the methodology used to define the study areas, particularly as it relates to lands designated as agriculture. The documents place an emphasis on preserving agricultural lands within the city limits and state a policy of protecting agricultural lands immediately outside the city limits. At the same time, the documents pursue studying annexation of lands in the unincorporated area that are protected by Measure J and Measure P. The stated policies and intention of the study areas clearly contradict each other, as any annexation would remove the agricultural protections provided under Measure J and Measure P. Further, if the City intends on pursuing future development, it would make greater sense to develop in areas currently within the City limits rather than pursuing lands in the unincorporated area and threatening agricultural protections put in place by the voters of Napa County.	The comment pertains to the Draft General Plan, not to the merits of the environmental analysis in the Draft EIR. The City notes that the comment incorrectly characterizes goals and policies in the Draft General Plan. For example, the growth strategy principles articulated in the Land Use and Community Character Element of the Draft General Plan do not seek to protect agricultural lands immediately outside the city limits as the comment states; rather they seek to "protect agricultural lands located outside the Urban Limit Line" and to "preserve agriculture, green, and open space within the Urban Limit Line." As shown on Figure 1.2 of the Draft General Plan, the Urban Limit Line is wholly contained within the City limits. Further, as noted on page 1-10 of the Draft General Plan, the City of St. Helena does not have jurisdiction in areas outside of its City limits has no jurisdiction beyond the City limits and therefore cannot implement policies that pertain to "lands immediately outside the city limits." Additionally, the comment mischaracterizes Policy LU1.G and Policy LU1.H, which do not express an intent to annex any lands beyond the current City limit. Rather, Policy LU1.G commits the City only to studying the benefits of annexing adjacent lands without expressing intent or direction to pursue annexation. Similarly, Policy LU1.H does not express intent or commit the City to annexation. Therefore, the statement that policies related to lands designated as agriculture in the Draft General Plan are in conflict is false. Further, the City notes that numerous policies in the Draft General Plan promote infill development and preserve agriculture and open space lands beyond the Urban Limit Line.
A3-B-2		
A3-B-3	2. Both the General Plan and the DEIR project significant job growth in the tourism and hospitality industries. While the number of jobs projected differ significantly between the two documents, regardless, the need for housing that is affordable to the existing and projected workforce is not adequately addressed. Failure to address existing and future housing needs in the City exacerbates the challenges the greater Napa County community faces in providing housing opportunities.	See response to comment A3-A-4, above.

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A3-B-4	The Transportation Element does not address existing traffic congestion or consider further impacts on traffic created by an imbalance between job growth and housing. While the City of St. Helena has the option to adopt Statements of Overriding Consideration and accept that traffic congestion will increase as a result of an adopted General Plan the General Plan should clearly state this as a goal(s) and the DEIR should fully disclose the environmental impacts.	See response to comment A3-A-4, above.
A3-B-5	General Comments. 1. As noted in my December 19, 2018, request, three Study Areas located outside of the city limits were included in the most recent draft Update. The stated purpose for including these areas was for "informational purposes only" so that the City could conduct meaningful analysis to inform both decision makers and the public. However, as noted in the letter, meaningful analysis in the DEIR does not correlate with the boundaries of the Study Areas. Instead, the DEIR more broadly looks at virtually all unincorporated areas surrounding the City and then applies a mistaken rationale that out-of-agency City services provided to these selective areas makes them eligible for annexation, which is not the case. For example, Study Area 2, which is a City owned spray field, generates no demand for library services, whereas the unincorporated community of Angwin located several miles from the City generates demand for City library services, but is not included within a Study Area. This inconsistent treatment of unincorporated areas purportedly relating to the selective Study Areas is a reoccurring inconsistency over most areas of analysis within the DEIR. This is confusing to the reader at a minimum, and may lead to incorrect assumptions regarding the extent to which study areas qualify for annexation.	The comment contains several inaccuracies and mischaracterizations. First, the intent of including the study areas is not to "conduct meaningful analysis" as the comment states, but rather, as noted on page 2-3 of the Draft EIR, "the intent of including the three study areas within the Planning Area of the General Plan update is to document sensitive environmental resources and regulatory or capacity constraints associated with those areas." Further, it is incorrect that "the DEIR more broadly looks at virtually all unincorporated areas surrounding the City and then applies a mistaken rationale that out-of-agency City services provided to these selective areas makes them eligible for annexation." The Draft EIR makes no assumption that the study areas will be annexed to the City of St. Helena. On the contrary, the Draft EIR repeatedly states that St. Helena does not have jurisdiction in areas outside of its city limits and that the policies and actions in the Draft General Plan would not apply in the study areas. Additionally, the Draft EIR does not assume that growth in the study areas will increase demand for City of St. Helena library services; in fact, on page 3.12-18 of the Draft EIR, it is stated that the growth in resident and employee population would not substantially increase demand for library services or create a need for new or expanded library facilities. Please see also response to comment A3-B-2.
A3-B-6	2. Proposed Policies LUl.G and LUl.H seek annexation of unincorporated property. The DEIR does not address the potential environmental impacts associated with these policies, which will result in the urbanization of unincorporated farmland. Similarly, Policy LUl.G calls for the extension of sewer service to unincorporated areas. The DEIR does not evaluate this growth-inducing proposal.	The comment characterizes the inclusion of Proposed implementing actions LU1.G and LU1.H as an attempt to annex unincorporated property without adequate assessment of the associated environmental impacts. Implementing action LU1.G on page 2-33 of the General Plan Update recommends that the CIty of St. Helena "work with property owners and the Napa County Local Agency Formation Commission to study the benefits of annexing lands adjacent to the City of St. Helena" in locations where the CIty owns and operates municipal infrastructure and provides municipal services. Implementing action LU1.G asks that consideration of annexation would be collaborative between the City, LAFCO, and property owners and would

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		ensure continuous, successful delivery of critical municipal infrastructure and services needed in unincorporated areas. Implementing action LU1.H recommends advocating for "favorable tax-sharing agreements that ensure that the City receives the revenues necessary to support the municipal services and infrastructure required in those areas" if annexation occurs. Prior to annexation, policy LU1.2 requires that "Urban services, such as sewer, water, and storm drainage, will only be extended to development within the Urban Limit Line." As stated on page 2-3 of the Draft EIR Project Description, the City included the study areas in the EIR analysis in order to document sensitive environmental resources and regulatory of capacity constraints associated with the study areas, given the adjacency of the study areas, and the City's role in providing limited municipal services to the study areas. Impacts in both Chapter 3.12: Public Services and Recreation and Chapter 3.14: Utilities and Service Systems are assessed for the entire planning area and associated population, including the Study Areas, and are all found to be less than significant. Therefore, the statement that the DEIR does not adequately address the environmental impacts associated with potential expansion is not correct.
A3-B-7	Both the Update and DEIR identify that the State has ordered upgrading of the City's sewage treatment facilities, but the DEIR does not address how the City plans to overcome this critical service-deficiency. The City cannot plan for sewer line extensions and the associated impacts of growth without knowing whether the sewage treatment facility can or will be allowed to operate in the future at the level needed to provide additional services. These are significant unmitigated public utility impacts.	The comment states that the DEIR does not address how the City plans to overcome the service deficiency identified by the State's order to upgrade the City's sewage treatment facilities. In the discussion of Impact 3.14-1, the DEIR cites the Regional Water Quality Control Board (RWQCB) Cease and Desist Order (CDO) No R2-2016-0004, which requires the City to upgrade its treatment systems in order to meet waste discharge requirements. As stated in the DEIR, the CDO mandates a series of tasks and a timeline for the City to comply with the treatment system upgrades. Also stated in the DEIR, the City is actively working to finalize alternatives and meet the compliance schedule, including submission of the required feasibility study for the Wastewater Treatment and Reclamation Plant improvements, and must begin implementation by March 1, 2019. Thus, the City's plans to upgrade its facilities and resolve its waste discharge violations with the State have been sufficiently addressed in the DEIR.
A3-B-8	4. Policy language in the Update is inconsistent in terms of how the City intends to interact with the County. For example, Policy LUS.2 encourages the County to promote agriculture and limit development on nearby unincorporated lands.	The comment is noted; however, as the comment relates to the text of the Draft General Plan and does not raise any significant environmental issues or address the adequacy of the EIR, no further response is necessary.

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	As always, the County is eager to engage with the cities and town on this crucial topic. In contrast, Policies LUl.G and LUl.H acknowledge the need to collaborate with property owners and LAFCO in pursuing annexation, but leaves the County out of the stakeholder list despite the fact that annexation cannot occur without both the City and County agreeing to a tax-sharing agreement. The proposed expansion of the City Limits is further vexing by the inability to meet current municipal obligations as noted in number 5 below.	
A3-B-9	The DEIR should also evaluate an alternative that reduces the current extent of incorporated land. The City can clearly meet its projected needs for future growth within the existing city limits, even with the City designating 46 percent of the incorporated area as agriculture and not intended for urban development. The inclusion of farmland within the city limits but outside of the Urban Limit Line adopted by the City is problematic. In essence, the City is obligating itself to provide urban services to 1,451 acres of agriculture, including water, sewage, police, fire, and public administration. This significantly affects the ability of the City to meet their municipal obligations in a sustainable manner. A reduced development alterative that moves rural land out of the City's growth boundary would still meet all of the DEIR project objectives and would result in fewer significant and unavoidable environmental impacts than the proposed project, resulting in the environmentally superior alternative.	The comment states that the EIR should evaluate an alternative that reduces the current extent of incorporated land. This would not be a feasible alternative for the City to undertake for a number of reasons. Primarily, the City is already providing water, police, and fire services to all areas within City limits. If the City were to reduce its incorporated area, it would still be bound by mutual aid contracts to continue providing services to the newly unincorporated areas, but would have lost the tax revenue from those properties to support the services. Agricultural uses are also a large part of the city's character, and removing agricultural land from the city would be contradictory to the Proposed Plan's objective of preserving St. Helena's agricultural heritage.
A3-B-10	Study Areas 6. The growth assumption methodology presented in the DEIR is confusing and needs clarification. Tables ES-1, ES-2 and ES-3 make little sense, even with the disclaimer footnote noting that figures are rounded to their nearest hundred. First, it is inappropriate to round figures to their nearest hundred in a setting such as St. Helena because the levels of growth in many cases do not reach 100. For example, the City's Regional Housing Needs Allocation is 31 units. Rounding that to the nearest 100 equates to zero. As this confusion relates to the Study Areas, the DEIR appears to have based some of the impact analysis on unrealistic growth assumptions. Table ES-1 suggests 100 new dwelling units in the Study Areas, when in actuality there does not appear to be enough vacant land to accommodate anywhere near this number within the three Study Areas combined. As these lands are protected by the County's Agricultural Preserve and Measures J and P, it is unclear how this projected level of growth can be obtained within the Study Areas, absent City incorporation and rezoning (land within the cities and town are not subject to Measures J and P). Likewise, the DEIR projects 1,100 new jobs within the Study Areas under	Typographical errors in Tables ES-1, ES-2 and ES-3 are hereby corrected to reflect buildout totals used in the analysis. The comment states that rounding the buildout projections for the city and study areas to the nearest hundred is confusing and portrays future growth at levels that are unrealistic. As stated in the Project Description, buildout estimates should not be considered a prediction for growth, as the actual amount of development that will occur through 2040 is based on many factors outside of the City's control, including changes in regional real estate and labor markets and the decisions of individual property owners. Therefore, buildout estimates represent one potential set of outcomes rather than definitive figures. In rounding the buildout figures to the nearest hundred, the DEIR analysis is not suggesting that policies in the Proposed Plan would cause properties under County jurisdiction to develop at higher intensities than allowed under County regulations; rather, it is acknowledging the uncertainty inherent in the projection of future development and taking a more conservative approach to the environmental analysis by erring on the

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	existing City and County zoning/general plan, but only 600 forecasted if the Update is adopted. There is no logical reason for this, and it appears simply to be a means justify adoption of the Update by comparing it to inaccurate assumptions regarding the status quo. The analysis makes it appear as if the proposed policies in the Update would result in much more intense development than would occur under the County. Proposed City policies call for the annexation of these areas (LUl.G/H), extension of sewer service outside of city limits, an increase in hotel rooms (ES2.6), encouragement of more restaurant seats (ES2.7), and additional water connections, which are all things that are not possible under County regulations. As presented, this information can lead to inaccurate conclusions, which could prevent sound policy decisions.	side of overestimation rather than underestimation. It should be noted that where technical modeling was required for the transportation analysis, the unrounded estimates were used.
A3-B-11	Finally, the inclusion of the Study Areas ignores the obvious existing availability of developable land currently labeled as Agriculture already located within existing city limits.	The comment states that inclusion of the Study Areas within the Planning Area ignores the possibility of developing Agricultural land within city limits. Proposed Policy LU1.2 on page 2-30 of the DEIR clearly states that urban development may only occur within the Urban Limit Line, and that the "Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies or when logical to include developed lands receiving urban services from the City." Expansion would be considered only if it "does not result in adverse impacts to adjacent uses in either the urban or rural areas." The General Plan Update includes multiple additional policies which encourage infill development and redevelopment explicitly to postpone expansion of the CIty's Urban Limit Line. The General Plan Update also includes multiple policies that strictly limit development and conversion of agricultural land. Future development is subject to the City's existing Growth Management System and "right to farm" ordinance. Conversion of agricultural land within city limits would impact the economic benefits, aesthetic value, and agricultural resource value of existing and productive land.
A3-B-12 A3-B-12	Transportation and Traffic. 7. CRl.1 in the Update states a desire to promote connected streets; however, the Transportation Element does not include any new congestion relieving additional roadway segments/connections. The element defers to a later unspecified date, any segment improvements that could relieve local congestion.	The comment regards a policy in the Draft General Plan Update and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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A3-B-13	8. With virtually no planned residential growth in the Update, the goal in CR3.3 of shifting work trips from predominantly single-occupancy vehicles to 45% carpool, transit, walking is unrealistic. The Economic Sustainability policies emphasize job growth in the lower paying sectors such as hotels, restaurants and retail, which will require more commuting at shifts throughout the day and evening. Without significantly increasing the number of people per household (the City is currently 9% lower than the countywide average), even more housing will be needed to house future workers, increasing the likelihood that they will commute from out of the plan area. There will be few homes available from which employees will be able to walk to work. Transit and carpooling are unlikely to meet nearly half of the demands of a service economy workforce. This is not a realistic basis for establishing long-term policy.	The comment is noted; however, as the comment relates to the text of the Draft General Plan and does not raise any significant environmental issues or address the adequacy of the EIR, no further response is necessary.
A3-B-14	9. The discussion of Intersection Traffic Operations on page 3.13-42 of the DEIR includes a recognition of potential impacts to roadways within Napa County; however, the DEIR only evaluated one intersection. The analysis ignores the potential effects of future development in St. Helena on the need for improvements on County roads such as Deer Park Road, Pratt A venue, or Zinfandel Lane. The DEIR did not comprehensively evaluate the impacts to all County roads within the potential area of impact, especially considering the likelihood of additional commuting referenced in Paragraph 8 above.	It is relatively common that, for the purposes of evaluating an update to a General Plan under CEQA, an agency will study facilities within the jurisdiction itself for the purposes of determining how the addition of new trips affect operations. For example, the Napa County General Plan EIR (2007) evaluated traffic congestion impacts only in unincorporated County areas and not within the incorporated cities. Similarly, the 2018 Yountville General Plan EIR traffic analysis only studied intersections within the Town. The County of Napa recently adopted (on February 5, 2019) an updated Circulation Element with new policies that balance improving access, balancing congestion, and serving remote areas of the County, while preserving the area's rural character. Policy CIR-38 of the newly-adopted Element establishes a policy of LOS D as the acceptable peak hour LOS for signalized intersections and arterial roadways, but unsignalized intersection operations appear to not be subject to any LOS policy. Because the County does not establish policies related to traffic congestion at unsignalized intersections, any congestion-related impacts to the County-controlled, unsignalized intersections along Deer Park Road, Pratt Avenue and Zinfandel Lane at their intersections with SR 29 and Silverado Trail would not necessarily constitute a significant CEQA impact. The Pratt Avenue corridor was analyzed as part of the DEIR at its intersections of SR 29 (which is located within the City of St. Helena) and Silverado Trail (which is located in the unincorporated County). The Pratt

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		Avenue corridor is located wholly within the City, except for the portion of the corridor between the Napa River and Silverado Trail (a distance of about 120 feet); operations on this short segment of Pratt Avenue are fundamentally controlled by the intersection at Silverado Trail. The analysis of the Pratt Avenue/Silverado Trail found that the impact to intersection operations would be less-than-significant.
A3-B-14		The Deer Park Road corridor is defined as a two-lane Collector roadway in the County's Circulation Element (see Figure CIR-1 of the County's Circulation Element); therefore, the Deer Park Road corridor would not be subject to the County's peak hour LOS D policy. Similarly, the intersections at Deer Park Road/SR 29 and Deer Park Road/Silverado Trail are unsignalized, and therefore not subject to the peak hour LOS policy. It is also noted that the County's Supplemental EIR (SEIR) for the update to the Circulation Element included segment-level peak hour LOS analysis of the Deer Park Road corridor between SR 29 and Silverado Trail (as presented on page 15 in Table A of the SEIR). This segment-level peak hour LOS noted that the corridor would operate at LOS C with a volume-to-capacity ratio of less than 0.40 in the Year 2040 scenario. The volume-to-capacity ratio value suggests that there would be sufficient capacity to accommodate additional demand generated by implementation of the proposed City of St. Helena General Plan prior to degradation of corridor operations to LOS E (indicated by a volume-to-capacity ratio between 0.85 to 1.00). The Zinfandel Lane corridor is defined as a two-lane Arterial roadway in the County's Circulation Element (see Figure CIR-1 of the County's Circulation Element); therefore, the Deer Park Road corridor would be subject to the County's peak hour LOS D policy. The intersections at Zinfandel Lane/SR 29 and Zinfandel Lane/Silverado Trail are unsignalized, and therefore not subject to the peak hour LOS policy. The County's Supplemental EIR (SEIR) for the update to the Circulation Element included segment-level peak hour LOS analysis of the Zinfandel Lane corridor between SR 29 and Silverado Trail (as presented on page 16 in Table A of the SEIR). This segment-level peak hour LOS noted that the corridor would operate at LOS C with a volume-to-capacity ratio of 0.30 or less in the Year 2040 scenario. The volume-to-capacity ratio value suggests that there would be sufficient

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		capacity to accommodate additional demand generated by implementation of the proposed City of St. Helena General Plan prior to degradation of corridor operations to LOS E (indicated by a volume-to-capacity ratio between 0.85 to 1.00). The City recognizes the need for ongoing inter-agency coordination to reduce congestion in the vicinity of St. Helena, and is eager to participate in discussions with the County on how to balance reducing congestion at the interface between the City and County with maintaining the County's rural character. It is noted that the newly-adopted County Circulation Element contains Action Item CIR-6.1, which encourages the establishment of a countywide transportation impact fee program to address cumulative impacts associated with new development throughout Napa County. The City would support this concept, and will add a policy to the City of St. Helena General Plan Circulation Element to that effect.
A3-B-15	10. Any proposed traffic controls on major roadways within St. Helena (esp. State Hwy 29 and Silverado Trail and the crossroads) will cause backups/delays in unincorporated areas. This impact is not recognized or evaluated.	This comment is noted. As mentioned in response to comment A3-A-3, the purpose of signalization is to better balance right-of-way control for all motorists at an intersection, thus reducing system-wide delay. Generally, signalized intersections have a higher capacity as a whole versus stop-controlled intersections. Additionally, signalization may provide a secondary benefit to safety as it may reduce unsafe driver decisions associated with long delays at stop signs. The installation of signals at the locations noted in the EIR would return intersection operations to acceptable operations (LOS D or better), which is indicative of minimal congestion.
A3-B-16	11. As stated in Impact 3.13-4 of the DEIR, the City is relying on development to connect significant circulation gaps in the street network; however, the needed gap closures are within areas that the Update does not designate or plan for future growth. The discussion regarding this Impact goes on to say the DEIR relies on the following to improve traffic congestion and make the roadways safer: (1) City's support of the concept of complete streets; (2) Napa County's efforts to improvement countywide trails; and (3) Caltrans' work to reduce congestion on State Hwy 29. There is no defined capital improvement plan to ensure completion of the street network. Instead, mitigation relies on the contributions of other agencies, the benefits of which are speculative regarding traffic congestion within the City. This is not a feasible approach to addressing	This comment is noted. The Planned Roadway Improvements subsection on page 3.13-28 notes that the analysis assumes that none of the proposed capacity-enhancing improvements in the Proposed Plan are constructed as a baseline assumption given that these improvements are subject to further discretionary action by the City Council. The basis of this assumption is on page 5-19 of the Proposed Plan, whereby future roadway extensions "shall trigger a requirement for a 'Special Study', subject to City Council approval." Therefore, the traffic analysis as presented represents an analysis where the street network is in place with no foreseeable gap closures. The Proposed Plan Circulation Element includes Policy CR1.11 and

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	traffic management and is inadequate for the purposes of the DEIR. A full and appropriate traffic analysis should be prepared that considers the potential impacts of leaving the street network in place with no foreseeable future gap closures	Implementing Action CR1.K, which relate to the development of a multimodal transportation fee program that will fund transportation improvements including, but not limited to, roadway extensions. The General Plan EIR transportation analysis aids in the development of the future Captial Improvement Plan and multimodal transportation fee program by noting locations of impacts that require physical improvements.
A3-B-17	12. It appears that the City water system is at capacity. The DEIR only considers conservation measures as a suggestion, not a requirement, and no new long-term sources or significant reductions are proposed. This seems to be a shortsighted approach and possibly a significant environmental impact when measured against the additional future demands created by the proposed annexation areas, as well as projected hotel and restaurant growth.	The comment regarding the City's water supply capacity is factually inaccurate. As noted on page 3.14-4 of the Draft EIR, St. Helena's potable water demand is within its safe yield parameters, even for critical water emergency years. Further, as noted on page 3.14-5 of the Draft EIR, the City recognizes that water should be recycled and put to beneficial use, and has contracted with West Yost Associates to identify potential customers and users of recycled water within and contiguous to city limits and prepare cost estimates for the required infrastructure to achieve zero discharge into the Napa River. Additionally, Impact 3.14-4 assesses the Proposed Plan's impact on water supply. The analysis cites the City's Water Neutral Policy for Development, which is a local requirement for all new development to be water-neutral from the City-delivered water system through any combination of on-site water conservation measure s and/or off-site retrofitting and/or well water. The analysis also considers a range of Proposed Plan policies that promote water conservation through requirements for development and other mechanisms, and that commit the City to seeking new water supply sources. Together, the Water Neutral Policy for Development and Proposed Plan policies are sufficient to demonstrate that future development would not exceed existing entitlements and resources; therefore, no mitigation measures involving new long-term sources or significant reductions were required.
A3-B-18	The documents seem to dismiss the creation and use of recycled water as infeasible but the conclusions lack any credible sources as to why recycled water is infeasible. Since the City owns and operates a wastewater treatment facility, it seems plausible and preferable to find ways to utilize this resource for irrigating the significant agricultural properties within the City limits, as well as other facilities such as playfields, parks, municipal landscaping, etc.	The comment states that the Proposed Plan and DEIR dismiss the use of recycled water as infeasible; however, the DEIR considers the potential for recycled water as part of the environmental setting and analysis. DEIR section 3.14 includes background information on water recycling and non-potable water use, noting that while the City does not currently have a recycling water program, it recognizes the potential benefit of using recycled water and has undertaken a study of potential customers and cost estimates for infrastructure. The DEIR notes that while a net zero discharge program

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		was determined to be prohibitively expensive, the City hopes to develop a smaller recycled water program that does not require seasonal storage. The DEIR also cites Proposed Plan Implementing Action PF1.C, which suggests that the City explore recycled water as a potential water source, and Implementing Action PF2.B, which would require the City to continue wastewater treatment system upgrades to reduce the number and scale of implementation constraints on the recycled water program. Impact 3.14-2 considers the effect of Implementing Action PF2.B on water and wastewater facilities, and Impact 3.14-4 considers the effects of implementing actions PF1.C and PF2.B on water supply.
A3-B-19	14. The City is currently under order to upgrade the municipal wastewater treatment plant. Neither the Update nor the DEIR recognizes this critical issue. This is a significant constraint to the No Project alternative, as well as any future growth proposals. The City should revised the DEIR and the Update to address how wastewater treatment will be improved and funded, before any decision are made regarding new growth and annexation.	Please see also responses to comments A3-B-7 and A3-B-18. In the discussion of Impact 3.14-1, the DEIR cites the Regional Water Quality Control Board (RWQCB) Cease and Desist Order (CDO) No R2-2016-0004, which requires the City to upgrade its treatment systems in order to meet waste discharge requirements. As stated in the DEIR, the CDO mandates a series of tasks and a timeline for the City to comply with the treatment system upgrades. Also stated in the DEIR, the City is actively working to finalize alternatives and meet the compliance schedule, including submission of the required feasibility study for the Wastewater Treatment and Reclamation Plant improvements, and must begin implementation by March 1, 2019. Thus, the City's plans to upgrade its facilities and resolve its waste discharge violations with the State have been sufficiently addressed in the DEIR.
A3-B-20	15. The Update calls for significant job growth in services that generally pay lower wages: hotels, restaurants, and retail. However, the Housing Element only plans for 31 residential units through 2023, far short of the General Plan horizon of 2040. This modest housing growth does not serve the current needs of the community and does not meet the future needs given the planned job growth, which is noted as a significant housing/jobs imbalance in the Transportation and Traffic Element (p3.13-2). This unresolved and ongoing imbalance has important implications for many other Impacts evaluated in the DEIR, and calls into question the adequacy of the entire document.	The comment is noted. The General Plan Update Housing Element includes multiple policies and implementing actions aimed at prioritizing and streamlining the development of affordable and workforce housing. Proposed Plan policy LU2.1 also would promote a mix of housing types and price ranges that are consistent with the Housing Element RHNA categories of housing affordability. Additionally, the DEIR does consider trips that begin within the Planning Area and end outside of the Planning Area, and vice versa, which accounts for impacts on commute traffic as shown on page 3.13-46 and in Table 3.13-6. Impact 3.13-1 finds that implementation of the Proposed Plan would result in a significant and unavoidable impact on the effectiveness of the circulation system. The Vehicle Miles Traveled (VMT) calculated in Chapter 3.13 are used to calculate potential and cumulative air quality and GHG emissions in Chapter 3.3: Air Quality and Chapter 3.6:

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		Energy, Climate Change, and GHG Emissions. Impacts in both chapters associated with air pollutant and GHG levels, based on the estimated VMT increase accounting for workforce travel into the City, are found to be significant and unavoidable. Therefore, the DEIR does seriously assess the potential implications of this imbalance.
A3-B-21	Alternative Analysis. As discussed in Paragraphs 12 and 14 above, the City has serious obstacles in continuing to provide adequate water and wastewater treatment. The DEIR acknowledges a jobs/housing balance without offering any solution and traffic congestion without requiring any relief. The Update is determined to have Significant and Unavoidable Impacts in the areas of farmland loss, air quality, climate change, and traffic Level of Service. The DEIR even concludes that another alternative, not the Update, is Environmentally Superior. Yet despite these concerns, the DEIR nevertheless recommends the Update as the Preferred Alternative. This gives the appearance that the DEIR analysis does not provide an objective and impartial analysis, but is instead a means to justify the proposed Update.	The comment states that the DEIR recommends the Proposed Plan as the Preferred Alternative despite finding that the Transportation Network Enhancement Alternative is the Environmentally Superior Alternative. The DEIR does not recommend a "Preferred Alternative." The DEIR concludes that the Transportation Network Enhancement Alternative is environmentally superior to the No Project Alternative, and discloses that the Proposed Project was found to have fewer potentially significant and unavoidable impacts than the Transportation Network Enhancement Alternative, but makes no recommendations and states no preferences.
A3-B-22 A3-B-22	Our shared community faces broad and fundamental issues that challenge the quality of life in both urban and rural areas. Finding solutions to address traffic, housing, water, and sustainability require regional approaches that involve governments working together. My goal in providing these comments is to establish a more complete analysis of pending policy and create an opening for the City and County to discuss meaningfully how we can achieve our mutual goals. Conflict is an unnecessary expense that does not benefit either participant and prevents the exploration of productive ideas. I look forward to starting our discussion. If you have any questions regarding this letter, please contact me at (707) 253-4805 or at david.morrison@countyofnapa.org. Thank you for the opportunity to provide comments on the DEIR. Respectfully, David Morrison	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
A4-1	MEMO Date: December 26, 2018 To: Noah Housh, Planning Director City of St. Helena	The comment is the salutation of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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	From: Napa Valley Transportation Authority Re: St. Helena General Plan Update 2040 Upon the review of the St. Helena General Plan Update 2040, the Napa Valley Transportation Authority would like to submit the following comments:	
A4-2	General Comment – Please replace all "NCTPA" references to "NVTA" and use the updated logo and Vine brand and color scheme. Also, "VINE" is now "Vine" P. 5-3 • Should mention the Countywide Bike Plan update now in progress P. 5-4 • ACS reference, but no reference to the Napa Countywide Pedestrian Plan or Napa County Travel Behavior Study. The St. Helena Pedestrian Plan was adopted by the City Council on May 9, 2017 www.nvta.ca.gov/countywide-pedestrian-master-plan. P. 5-7 • 2016 Pedestrian Plan should be included along with 2010 ADA Transition Plan. P. 5-9 • Old Vine Go photo-need to update photos for Vine Transit in plan. NVTA will provide new Vine photos. P. 5-10 • First bullet - revise sentence regarding Vine Trail-"will" connect St. Helena, not "connects" P. 5-11 • Please reference the current Countywide Transportation Plan – Vision 2040 – Moving Napa Forward www.nvta.ca.gov/countywide-plan-vision-2040. " • No reference to other plans such as the Countywide Bike Plan, Ped Plan, Travel Behavior Study or Plan Bay Area etc." P.5-23 • Where did the reference regarding bike lane and shared parking come from? CVC does not allow parking in bike lanes. • Class III-"vehicle barriers"-Class III facilities do not include barriers-Class IV includes separation. • Add Class IV – separated bike lanes with description P. 5-25 • When was this map completed? There are differences from some	The comment addresses policies and text in the Draft General Plan Update and is noted. The comment has resulted in one revision to the Draft EIR. One reference to NCTPA on page 3.6-18 of Chapter 3.6: Energy, Climate Change, and GHG Emissions has been updated as follows: "Preparation of this document was supported by BAAQMD, Napa Valley Transportation Authority (NVTA) ~~Napa County Transportation and Planning Agency (NCTPA)~~, Napa Valley Community Foundation, Napa County, and the cities of American Canyon, Calistoga, Napa, St. Helena, and Yountville." The remainder of the comment does not address the adequacy of the DEIR; thus, no response is necessary.

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	recommendations in the current Bike Plan Update that were reviewed by City Staff. • Should reference Bike Plan Update currently underway. P. 5-30 • c - These are identified in the countywide Bike and Ped Plans • e - ACS is mentioned-should include Countywide Transportation Plan, Bike Plan and Ped Plan • h – should state, "…in accordance with NVTA's Countywide Transportation Plan" P. 5-32 through P. 5-43 CR1. A • Include transit facilities Cr1.K • Include transit improvements * TDM strategies should coordinate with NVTA CR2.1 Figure 5.4 reference – These exist – there is no reference to the Pedestrian Plan or proposed facilities in Bike Plan update which have created these networks. Change to, "Update comprehensive bicycle and pedestrian networks identified in the Countywide Bike and Pedestrian plans that enhance neighborhood connectivity." CR2.6 No reference to the Safe Routes to School (SRTS) program which serves St. Helena schools. P. 5-38 through P. 5-42 CR2.D • Caltrans Bicycle Transportation Account has been replaced by the Active Transportation Program-there are new requirements under this program-see requirements in adopted 2016 Pedestrian Plan-update reference. CR3.1 TDM-no discussion of SB 1339 compliance/requirements or of NVTA's TDM programs. CR3.4 TDM Programs-include coordination with NVTA CR 3.5	

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	Should mention SRTS program CR 4.5 "a" SRTS program – should be "the" SRTS program	
Individual Letters		
B1-1	December 19, 2018 Hi Noah, thanks for the note. Quick Background: I worked with Greg Desmond starting in around 2009 up through Victor Carniglia in mid-2016 on the Noise Element and the EIR. We made it a better document beyond the "boiler plate" stuff the sound consultants provide on a short budget. Everything I did and input provided was done "through channels" through Greg, to the GP consultants and then to the sound consultants. This work included a five month noise study I did on background noise levels in St. Helena, what are commonly called "ambient" noise levels, information the consultant failed to provide, or understand. All this work was done, not through the public comment process, but as a pro bono technical consultant to the City.	The comment provides background on the commenter's engagement with the General Plan Update process and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B1-2	The EIR: I had done a review for Carniglia in July 2016 of the EIR pointing out a major flaw. It has been corrected in the current IER, so I have no comments to make on that. Other than, really, 90% of the EIR is total "boiler plate" and can be found verbatim in any other noise EIR the consultant has done.	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B1-3	The Noise Element: I do have comments on this, as I fear the current form has reverted back to the original, before the work we did between 2009 and 2016.	The comment regards the Noise Element of the Draft General Plan Update and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B1-4	Let's meet the week of January 14th. We'll need some time, but this is about giving our City a quality document, right? About any time is fine with me, so let me know. In the meantime, have a great time off. I will too. :) Yours, Jerry	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B2-1	Noah, I noted with interest in the newspaper that the recent public hearing on the EIR was "poorly attended". One of the reasons suggested for the crowd of 4 persons	The comment discusses the public process in the City of St. Helena and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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	in attendance was that "their comments just don't matter". That sure strikes home to me. When we bought our first home here on Tainter Street in 1986, I discovered that we needed to plan our trips to buy building materials at Central Valley Supply to avoid the back-up on 29 on our return. Often, we would loop around Sulphur Springs, Crane and Valley View Streets which I'm sure the neighbors appreciated. After we moved, I had a new alternate plan; driving south on 29, across Zinfandel, and back up the Trail. One day, in total frustration, I stopped into the Planning Department to ask the OBVIOUS QUESTION. Why isn't there an alternate to and through Saint Helena that provides access to the businesses south of town. I suggested perhaps an extension of Starr or some other street, or extending Dowdell or Vintage Streets to the Trail. I was told "that is in the Plan". That made sense to me. After all, it would allow businesses like Central Valley, Harold Smith and all the rest to provide better service to the community. Added to that, emergency vehicles could have better access North and South. That was over thirty years ago. Now, I know the wheels of government turn slowly so I would stop by the Department every five or ten years to check on that issue. At first I was told it was "difficult to cross farm property", even though I did that to drive my tractor to Lampson for service and repairs. Later, other reasons were given culminating in the latest nonsensical response; "But, we are planning to put more stop lights in on highway 29 and the Trail". WHAT??? So we now have the added inconvenience of providing signal light turn-in spacing for those entering the 29 backup. Consider, reducing the traffic congestion on highway 29 would increase SAFETY. Stop lights don't decrease vehicle counts. But now, I get it. My comments just don't matter. That's why I don't stop by anymore. For what it's worth, Glenn Cook	
B3-1	In 1997, I was selected by Friends of the Napa River to sit on the Committee appointed by St. Helena's City Council to decide the best way to spend our portion of Measure A funds which were to be used to minimize the risk of flooding on Napa River and Sulphur Creek inside City Limits, with the	The comment regards the dispensation of Measure A funds and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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Agenda Item #5.1.

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	requirement that any alterations would be carried out within a "Living River" context, assuring that any changes would enhance the river's environmental health while benefiting us. While most municipalities along the river (especially the City of Napa) made an honest effort to abide by the "Living River" requirement, the St. Helena Committee that took on this task was corrupt through and through, and no one other than I gave even a pretense of paying attention to "Living River" principles. It was an appalling experience for me. The fix was in from the beginning, and among the proposals that were floated was a cynical rerouting of Napa River above Pope Street bridge that would leave the riparian woodland intact for the moment, but was deliberately designed to erode and destroy both banks and all the riparian trees and habitat over a period of a few years. I made enough of a stink about that cynical plan that it was eventually dropped from consideration, but sadly nothing better was put forward. In an attempt to get the Committee to understand what the implications of their proposals would be for people living downstream and the survival of Pope Street Bridge, I personally funded through Friends of the Napa River a brief study by the highly regarded hydrology experts Philip Williams and Associates, which we gave to the St. Helena Measure A Committee so they could begin to understand the downstream impacts above Pope Street Bridge and to the bridge itself if they did one or another of their plans. Williams' mapping of flow patterns revealed great downstream risks involving the plan they settled on: the building of a long, riverside levee that cut off a huge, undeveloped, low-lying area that accommodated flood water every time there was a major rain event and took pressure off the area just above the bridge. I recall, I spent $20,000 on the Phil Williams study that gave the committee basic prognostications that would help them understand the implications of what they were proposing; but to my knowledge, that study was completely ignored by every member of the Committee and the highly paid consultants as well. That's when I washed my hands of the crooked Committee and its phony "Living River" process and quit in disgust. If anyone had genuinely cared, I was prepared to further fund Philip Williams to assure a legitimate "Living River" solution was developed, as raguirad by Measure A, which, as you may recall, passed with more than the necessary two thirds majority of the county's vote! This "super majority" made the "Living River" provision a mandatory aspect of whatever alterations were carried out	

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	using Measure A funds, as opposed to a simple majority vote that could be given little more than lip service. St. Helena's actual alteration: the huge, lengthy levee which destroyed many acres of our priceless existing floodplain, was in complete violation of both common sense and the "Living River" mandate. It was done for no reason but to destroy an existing, critically important and legally protected floodplain in order to turn all that low land into a huge housing development in the most unsuitable possible location. Now, during flood events, the changed river flow below the levee is destroying the oncestable bank just above Pope Street Bridge. A beautiful, historic mansion- I think it is 2240 Pope Street- is already being put at serious risk of toppling into Napa River as the high bank there is rapidly collapsing. This massive erosion, which will soon destroy the great old estate that existed safely there for more than a century, is a direct result of the changed flow dynamics caused by the levee's elimination of the flood plain that existed just above it. I believe the City is directly liable for the upcoming destruction of that property. The destructive, illegal levee, along with Hunter's proposed development that is bound to flood, has got to go NOW. This is all the product of a corrupt enterprise between a past Council, City staff and Hunter. Peter Mennen PO Box 421 St. Helena CA 94574 707-963-1170	
B3-2	Attachments A, B, C, D, E, F, G, H, I, J	The attachments were provided to support comment B3-1 and are noted.
B4-A-1	Re: Draft Environmental Impact Report Chapter 3.7-1 and 3.8-1 Dear Noah, My commendations on excellent maps in the sections above.	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B4-A-2	However, some of the information is not current, such as the USGS Fact Sheet relied on from 2000 has been replaced by the USGS Fact Sheet from December 2014. These areas should be re-written to reflect current statistics and realities. A copy of the 2014 Fact Sheet with predictions is enclosed.	The Seismic Conditions section on page 3.7-5 is hereby revised as follows using statistics obtained from the 2014 USGS Fact Sheet: "In a fact sheet published in ~~2003~~ 2014, the U.S. Geological Survey estimated that there was a 72 ~~62~~ percent probability that between 2014 ~~2003~~ and ~~2032~~ 2043, a 6.7 or greater magnitude earthquake will occur in the San Francisco Bay Region. The probability of a 6.7 magnitude or greater earthquake occurring along individual faults was estimated to be 22 ~~21~~ percent along the San Andreas Fault, ~~27~~ 33 percent along the Hayward-Rodgers Creek Fault, and ~~11~~ 26 percent along the Calaveras Fault (USGS, 2014) (~~USGC, 2003~~)."

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		This modification is a clarification of the content of the Draft EIR and does not affect the findings or conclusions of the environmental analysis. As noted in the Draft EIR on pages 3.7-23 through 3.7-24, neither the San Andreas Fault nor the Hayward-Rodgers Creek Fault passes through St. Helena and compliance with existing regulations and Proposed Plan policies and implementing actions would reduce potential impacts from ground shaking to the maximum extent practicable. Associated impacts would continue to be less than significant level.
B4-A-3	If the drafters of the EIR would like to consult further on seismic and fault issues related to West Napa Fault, the two authorities are Belle Philibosian, Research Geologist of the Earthquake Science Center who is actively involved in pit studies of the West Napa Fault from St. Helena to beyond Calistoga. Belle can be reached at 650-329-4784 or by cell phone at 626- 344-9159. Belle's e-mail address is bphilibosian@usgs.gov. The State Geological expert studying the West Napa Fault who has also traced with USGS its presence running through St. Helena and Calistoga to a length of 45 miles is Professor Michael Oskin, Chainnan of the Department of Geology, U.C. Davis. Dr. Oskin also served the USGS and provided a map attached from December 2014 that shows seismic activity running the length of the valley on the "west" side of Hwy. 29. In other words, the fault does not stop at the south border of St. Helena and there are several published sources I've provided verifying this. There are also visible fault damaged areas from the 2014 Napa earthquake. It appears on the USGS Map attached reaching the base of Mt. St. Helena. A website that should be viewed by the preparers of the draft EIR is easily found using google. Enter "Hayward Fault Shake Map" where three "break points" are given showing magnification of damage from a 7.0 quake along that fault. If the fault breaks in Fremont or Oakland, St. Helena is in for a greater than 8.0 quake. So please take this seriously, since the probabilities are so high of one or more events of 6. 7 or greater (72%) than noted in the current draft EIR with its outdated materials. Again, I've attached information about this.	As noted in the Draft EIR on pages 3.7-5 through 3.7-10, the Planning Area is located in a seismically active region. While there are no major regional faults or Alquist-Priolo Zones mapped in St. Helena, as shown on Figure 3.7-2 of the Draft EIR, portions of the West Napa Fault classified as an Undifferentiated Quaternary (meaning it has beenactive in the last 130,000 to 1.6 million years) pass through the City of St. Helena, based on 2018 data from the USGS and CGS. Further, the Draft EIR notes that a number of unnamed, relatively small, older faults are located at the base of the Sonoma and Vaca mountains along the margins of the Napa Valley; however, as displacement of these faults occurred more than 10,000 years ago, these faults are considered inactive according to the USGS and CGS. Accordingly, the Draft EIR found fault rupture hazard in St. Helena to be low; however, in order to further clarify this conclusion and put it in context, the second to last sentence of the fourth paragraph on page 3.7-8 of the Draft EIR is hereby revised as folows: "In comparison to other communities in the Bay Area where Alquist-Priolo Zones are present, the fault rupture hazard for the city is considered to be low." This modification is a clarification of the content of the Draft EIR and does not affect the findings or conclusions of the environmental analysis. Please see also response to comment B4-A-2. Additionally, the source information shown on Figure 3.7-2 is hereby updated to reflect the fact that 2018 data from USGS and CGS was used to create the map.
B4-A-4	The characterization made that St. Helena has less problems, otherwise there would be an Alquist-Priolo Map is inaccurate. The State Geological Survey is years behind and under-funded, thus the State's Geological Survey group selects studies based on population densities. This can be verified by Richard who	See responses to comments B4-A-2 and B4-A-3. St. Helena is located in a seismically active region with significant earthquake risk; however, in comparison to other communities in the Bay Area where Alquist-Priolo

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	handles maps for California Geological Survey in Menlo Park. Since Yountville, St. Helena and Calistoga are smaller and more rural than Napa, the CGS focus was American Canyon and Napa, and there were no funds and less priority for the State to complete maps for the upper part of the valley due to smaller populations compared to many other areas of the state waiting in line for Alquist-Priolo Maps or updates. As CGS told the press ("San Francisco Chronicle"), "we have a 300 year backlog given the meager funding provided for development of Alquist-Priolo Maps."	Zones are present, the fault rupture hazard for the city is considered to be low.
B4-A-5	I don't believe the stark probabilities of a problem from a break in the West Napa Fault should be hidden from view. Burying one's head in the sand leaves people victims of their own city personnel's biases that are not founded on reality. A 45-miles fault line = a 7.0 quake were the West Napa Fault to break. It is building pressure.	See responses to comments B4-A-2 and B4-A-3.
B4-A-6	The drafters of the EIR should also include in their references the State Guidelines for Seismically Active Areas from 2008: "Special Publication 117 A" and update their descriptions and systems as well, based on this Publication. I am sorry to see the EIR writers are so far removed from updating their records, relying on 2000 data for the most part from both the USGS and State GS. I provided you with a copy of this Publication for use by residents. Perhaps you can share it with the EIR preparers so they can update this chapter. I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is described as Seismically Active, I believe a description should include this reality.	The comment is noted. The following text has been added to the "Seismic Hazards Mapping Act, California Public Resources Code Sections 2690–2699.6" section within the Regulatory Settings of Chapter 3.7: "Special Publication 117, "Guidelines for Evaluating and Mitigating Seismic Hazards in California" was originally published in 1997 and most recently updated in 2008. The objectives of the State Guidelines are to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations and promote uniform and effective statewide implementation of the evaluation and mitigation elements of the Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act establishes a statewide minimum public safety standard for mitigation of earthquake hazards, to reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy. Prior to approval of a project, the State requires preparation of a geotechnical report by a registered civil engineer or certified engineering geologist that evaluates of the nature and severity of seismic hazards at the site, and applicable mitigation measures as necessary. The geotechnical report should subsequently be independently reviewed by the lead agency to determine the adequacy of the hazard evaluation and proposed mitigation measures and to determine the requirements of Section 3724(a) are satisfied. The Guidelines provide an overview of this process, including investigation of potential seismic hazards, for use at the project level.

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		Public Resources Code Section 2699 directs cities and counties to "take into account the information provided in available seismic hazard maps" when it adopts or revises the safety element of the general plan and any land-use planning or permitting ordinances. The Guidelines state that if the CEQA process is completed prior to site-specific investigation, it may be desirable to discuss a broad range of potential mitigation measures and related impacts."
B4-A-7	Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is the result of a wind-driven firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards.	The comment is noted. While conflagration resulting from a wind-driven firestorm or a seismic event could occur following implementation of the Proposed Plan, the purpose of the DEIR is to satisfy the evaluation of environmental impacts required by the CEQA Guidelines. Last updated in 2018, the only significance criteria associated with fire safety listed in Appendix G of the CEQA Guidelines is VIII. Hazards and Hazardous Materials, h) "Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?" (page 288 of the 2018 CEQA Guidelines, Appendix G). This impact is assessed on page 3.8-30 of the DEIR and is determined to be less than significant based on the requirements of the California Fire Code and California Building Code (both adopted by the St. Helena Municipal Code), the California Strategic Fire Plan, and Proposed Plan policies and implementing actions that address fire safety. The determination of risk for this impact is based on the California Department of Forestry and Fire Protection Fire Hazard Severity Zones (FHSZ) mapping and Fire Threat, Fire and Resource Assessment, which both carry regulatory implications on fire safety within development under Government Code, Section 511182. This method of assessment is comprehensive and based on authoritative maps, and is in line with CEQA requirements. While conflagration is a possibility, it would be difficult to assess for the purposes of the DEIR without basing conclusions on speculation.
B4-A-8	As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern	The comment suggests policies for the Draft General Plan Update and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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	are ornamental fire walls or area dividers like the one at Hall Winery on the second floor in their tasting room.	
B4-A-9	Thank you for this opportunity to comment. Sincerely, Lois Ann Battuello	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B4-A-10	Attachments: USGS updates and seismic facts from historic reports	The attachments were provided in support of comments B4-A-2 and B4-A-3 and are noted.
B4-B-1	Re: Draft Environmental Impact Report Chapter 3.7-1 and 3.8-1 Dear Noah, My commendations on excellent maps in the sections above.	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B4-B-2	However, some of the information is not current, such as the USGS Fact Sheet relied on from 2000 has been replaced by the USGS Fact Sheet from December 2014. These areas should be re-written to reflect current statistics and realities. A copy of the 2014 Fact Sheet with predictions is enclosed.	See response to comment B4-A-2.
B4-B-3	If the drafters of the EIR would like to consult further on seismic and fault issues related to West Napa Fault, the two authorities are Belle Philibosian, Research Geologist of the Earthquake Science Center who is actively involved in pit studies of the West Napa Fault from St. Helena to beyond Calistoga. Belle can be reached at 650-329-4784 or by cell phone at 626- 344-9159. Belle's e-mail address is bphilibosian@usgs.gov. The State Geological expert studying the West Napa Fault who has also traced with USGS its presence running through St. Helena and Calistoga to a length of 45 miles is Professor Michael Oskin, Chainnan of the Department of Geology, U.C. Davis. Dr. Oskin also served the USGS and provided a map attached from December 2014 that shows seismic activity running the length of the valley on the "west" side of Hwy. 29. In other words, the fault does not stop at the south border of St. Helena and there are several published sources I've provided verifying this. There are also visible fault damaged areas from the 2014 Napa earthquake. It appears on the USGS Map attached reaching the base of Mt. St. Helena. A website that should be viewed by the preparers of the draft EIR is easily found using google. Enter "Hayward Fault Shake Map" where three "break points" are given showing magnification of damage from a 7.0 quake along that fault. If the	See response to comment B4-A-3.

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	fault breaks in Fremont or Oakland, St. Helena is in for a greater than 8.0 quake. So please take this seriously, since the probabilities are so high of one or more events of 6. 7 or greater (72%) than noted in the current draft EIR with its outdated materials. Again, I've attached information about this.	
B4-B-4	The characterization made that St. Helena has less problems, otherwise there would be an Alquist-Priolo Map is inaccurate. The State Geological Survey is years behind and under-funded, thus the State's Geological Survey group selects studies based on population densities. This can be verified by Richard who handles maps for California Geological Survey in Menlo Park. Since Yountville, St. Helena and Calistoga are smaller and more rural than Napa, the CGS focus was American Canyon and Napa, and there were no funds and less priority for the State to complete maps for the upper part of the valley due to smaller populations compared to many other areas of the state waiting in line for Alquist-Priolo Maps or updates. As CGS told the press ("San Francisco Chronicle"), "we have a 300 year backlog given the meager funding provided for development of Alquist-Priolo Maps."	See response to comment B4-A-4.
B4-B-5	I don't believe the stark probabilities of a problem from a break in the West Napa Fault should be hidden from view. Burying one's head in the sand leaves people victims of their own city personnel's biases that are not founded on reality. A 45-miles fault line = a 7.0 quake were the West Napa Fault to break. It is building pressure.	See response to comment B4-A-5.
B4-B-6	The drafters of the EIR should also include in their references the State Guidelines for Seismically Active Areas from 2008: "Special Publication 117 A" and update their descriptions and systems as well, based on this Publication. I am sorry to see the EIR writers are so far removed from updating their records, relying on 2000 data for the most part from both the USGS and State GS. I provided you with a copy of this Publication for use by residents. Perhaps you can share it with the EIR preparers so they can update this chapter. I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is	See response to comment B4-A-6.

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	described as Seismically Active, I believe a description should include this reality.	
B4-B-7	Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is the result of a wind-driven firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards.	See response to comment B4-A-7.
B4-B-8	As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern are ornamental fire walls or area dividers like the one at Hall Winery on the second floor in their tasting room.	See response to comment B4-A-8.
B4-B-9	Thank you for this opportunity to comment. Sincerely, Lois Ann Battuello	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B4-B-10	Attachments: USGS updates and seismic facts from historic reports	The attachments were provided in support of comments B4-B-2 and B4-B-3 and are noted.
B5-1	To whom it may concern As a long time resident of St Helena, I am very concerned about the quality of life here. In this letter I will only discuss the current need for the control of traffic flow. Especially during rush hours, week ends, and holidays. In the long term there will be a need for additional connector streets to mitigate "in-town" traffic congestion.	The comment is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B5-2	For now, I feel that a "High and wide" Adams St Bridge, crossing the Napa River and aligning with the current meadowood access street on the east side of the wilverado trail, could be the cure of the updated system. This bridge should be a "500 year" flood level height since the long term climate can be unpredictable, and I remember how isolated people were during past flooding periods. Additionally, the new bridge should be at least three "wide" lanes with a protected bike and pedestrian pathway. The traffic lanes should be wide enough to comfortably accommodate tractor-trailer rigs (18 wheelers), large box trucks, long motor homes, and stretch "limos" without the need to cross into adjoining	The comment regards the circulation network in St. Helena and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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	lanes while maneuvering onto the bridge, or entering the highway from the bridge. After the Adams St bridge is completed, I think the eat Pope St Bridge should be changed to one way only, eastbound, with a protected bike and pedestrian pathway. Tractor-trailer rigs and busses should be directed to the Adams St Bridge. Enforcement could include cameras, etc, especially during peak traffic periods, with follow-up by police. Later, Starr Street should connect not only Adams and Pope Streets, but it should continue north to Deer Park and south to Dowdell Lane.	
B5-3	Sincerely, Tim Klein	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B5-4	Attachments: Adams St Bridge, St Helena map from 1989	The attachment was provided in support of comment B5-2 and is noted.
B6-1	Good afternoon, Noah I am writing to you from this address with comments on the GP EIR that are more editorial in nature than those that I expressed at the PC meeting.	The comment is the salutation of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B6-2	Most of these herein are more of a 'fix it' nature - wrong word, wrong name (in one case, wrong city), wrong place or poorly worded. A few are a bit larger than that but the most important ones were made from the dais in the hearing and with the endorsement (apparently) of my colleagues. These are lesser comments that I would have made if droning on for a couple of hours was either possible or desirable. However, in my opinion, such errors contribute to lowering the perceived veracity of any document and the GP EIR is a document one wishes to have very high perceived veracity. My colleagues have not seen or discussed these, they are my own. The document needs a good editor. This is only a weak contribution to a start as I am not trained or talented in that area. The comments were written in .odt but a .doc file - which may have made some automatic formatting changes - is also attached. As always, questions or comments are invited - John	The comment refers to specific edits, questions, and comments listed in the letter. These comments are addressed in the responses below.
B6-3	ES-1, third paragraph, third sentence. Consider adding federal environmental review as a possibility (albeit rare).	The paragraph on page ES-1 has been revised as follows: "This EIR is a program EIR that examines the potential effects resulting from implementing designated land uses and policies in the Proposed Plan. The impact assessment evaluates the Proposed Plan as a whole and identifies the

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		broad, regional effects that may occur with its implementation. As a programmatic document, this EIR does not assess site-specific impacts. Any future development project made possible by the Proposed Plan would be subject to individual, site-specific environmental review, as required by State law. Any future development project that receives federal support, including transit projects receiving FTA funds, would be subject to federal environmental review, as required by NEPA."
B6-4	Also consider not capitalizing "State" throughout the document, especially since federal is not capitalized anywhere in the document.	The comment is noted. The capitalization of State refers to the State as an acting agency, similarly to the capitalization of the City throughout the DEIR in reference to the City of St. Helena. State in its capitalized form is used when referring to programs, policies, and regulations issued by the State of California. Federal is an adjective and does not require capitalization. Therefore, no change is necessary.
B6-5	ES-1, Proposed Plan, first paragraph, last sentence. Consider changing "fully replace" since, as correctly noted further along in the document, the housing element will not be replaced.	The sentence on page ES-1 has been revised as follows: "The Proposed Plan, which establishes a long-range planning framework and policies, would ~~fully~~ replace the City's existing General Plan if adopted by the City Council, but would retain the City's updated Housing Element."
B6-6	ES-4, Tables ES-1 and 2. Consider eliminating rounding to the nearest 100. Not only does this result in some intuitively confusing totals, but rounding to the nearest 100 with such small numbers leads to very large uncertainties on a percentage basis. In addition, in other locations in the document, exact numbers are depicted. Even the State Department of Finance now uses exact numbers in their E-1 population estimates.	See response to comment A3-B-10.
B6-7	ES-5, Transportation Network Enhancement Alternative, second paragraph, third sentence. Please do not capitalize "downtown" as it is not a proper noun. Excess capitalization seemingly appears often in the document; please consider removing all such cases ("CALTRANS", "Planning Area" or "Tribal Cultural" for examples).	The sentence on page ES-5 has been revised as follows: "The roadway would be designed to provide a high-quality bicycle and pedestrian connection to Ddowntown St. Helena, with a full Class I path along the west side of the street."
B6-8	ES-9, Transportation and Traffic, second paragraph. Please write out "Twenty-seven" (or any number if it begins a sentence).	The sentence on page ES-9 has been revised as follows: "~~27~~ Twenty-seven intersections were studied as part of the analysis under the General Plan Buildout."
B6-9	ES-10, Identification of Environmentally Superior Alternative, first paragraph. Consider writing numbers consistently in the text. In this paragraph, some	The comment is noted. Throughout the DEIR, numbers below 10 are written while numbers above 10 are written with numerals, with the exception of the

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	numbers are written ("six" and "seven") while another one word number ("11") is not. Generally either all numbers are written with numerals (except when beginning a sentence), no numbers are written with numerals or only numbers that can not be written with one or two words are shown as numerals.	sentence addressed above. The comment does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B6-10	1- 2, Intended Uses of the EIR, last sentence. Please consider changing the name "Napa Valley Transit Authority" to the correct name.	The sentence has been revised as follows: "Other agencies expected to use the EIR include: Napa County, the Napa County Local Agency Formation Commission (LAFCO), and the Napa Valley ~~Transit~~ Transportation Authority (NVTA), as well as State agencies such as the State Water Resources Control Board and Caltrans, and any other responsible or trustee agencies. "
B6-11	2-14, Urban Limit Line, third sentence. Please consider changing the end of the sentence to read, for the sake of clarity, "as described in Table 2.3-2.	The sentence has been revised as follows: "The Proposed Plan would adjust the ULL in two locations, at change areas 1 and 9 as described ~~below~~ in Table 2.3-2."
B6-12	2-21, Tables. Please see comment ES-4.	Please see response to comment B6-A-5, above.
B6-13	2-22, Table 2.3-5. Consider correcting the Study Areas column.	Please see response to comment A2-B-4, above.
B6-14	3.1-3, Open Space and Agriculture, second sentence. Is it 65 percent, 75 percent or 65 to 75 percent? Please clarify.	The sentence has been revised as follows: "The Proposed Plan designates approximately 65 ~~75~~ percent of the city as open space, agricultural land, woodlands/watershed, and/or parkland. Of this, about 71 percent is agricultural acreage."
B6-15	3.1-4, Light and Glare, last sentence. This reads as a flat conclusion but does not appear to be buttressed by data. Please consider either adding information or softening the sentence (for example, "...appear to be typical for an urbanized setting").	The sentence has been revised as follows: "The light and glare that exist in developed areas of the city ~~are~~ appear to be typical for an urbanized setting."
B6-16	3.1-10, CD5.E and 3.1-11, Impact 3.1-2 last sentence. It looks a bit odd calling for the city to consider having SR 29 designated a scenic highway (CD5.E) and at the same time writing that the new GP will not impact any scenic highway as the city has none. Consider deleting, "...lack of any designated state scenic highways with in the City and..", or making it clear that even if SR 29 is designated as a scenic highway, the polices in the plan will ensure that there are no impacts to scenic resources.	The paragraph has been revised as follows: "~~Due to the lack of any designated state scenic highways within the city and~~ As discussed, while the planning area does not currently contain any designated state scenic highways, SR-29 has been identified as eligible for such designation. However, policies and implementing actions included in the Proposed Plan would ensure that impacts on scenic resources within a state scenic highway would be less than significant."

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B6-17	3.1-12, second paragraph, second line from the end. Please consider replacing "main" with "all" as CD1.8 does not appear to limit itself to any particular roadway type	The sentence has been revised as follows: "Policy CD1.8 addresses the aesthetic effects of overhead wires and cables on ~~main~~ all roadways in the community."
B6-18	3.2-2, Agricultural Context, second sentence. Consider replacing the value given for agricultural production in Napa county with a figure considerably larger than the $737,298 shown.	The sentence has been revised as follows: "The Planning Area is located in Napa County, which ranked in the top 20 California counties for total value of production at $757,115,100 (Napa County, 2018). ~~$737,298 (CDFA, 2016).~~" The new source for this value is Napa County's 2017 Agricultural Crop Report, published in 2018.
B6-19	3.2-2, Farmland Characteristics. Consider rewording the second sentence, Agricultural uses as shown on Figure 3.2-1 are spread throughout the city, not simply adjacent to the ULL.	The sentence has been revised as follows: "Agricultural uses in the City of St. Helena are located throughout the city, with large areas around the periphery of the city adjacent to the City's Urban Limit Line (ULL)., ~~with large areas around the periphery of the city.~~ Agricultural uses surround the residential, commercial, and industrial land uses that are largely clustered in the center of the Planning Area."
B6-20	3.2-8, Napa County Measures J and P, second sentence. Consider replacing "Ma" with "Map".	The sentence has been revised as follows: "The Measure ensured that any lands designated as Agriculture, Watershed, and Open Space or Agricultural Resource on the Napa County General Land Use Map adopted in 1975 would remain so designated until December 1, 2020 unless annexed, redesignated by vote of the people, or redesignated by the Board of Supervisors given findings that the land is unsuitable for agriculture and not likely to be annexed, or to avoid unconstitutional taking of property, or to comply with State statutes concerning siting of solid waste facilities."
B6-21	3.2-12, Methodology and Assumptions, second paragraph. Please consider replacing, "The Planning Area for the Proposed Plan..." with the simpler, just as accurate and easier to read, "The planning area ...". Consider a universal search and replace, as the wordy phrase is used multiple times.	The sentence has been revised as follows: "The Planning Area ~~for the Proposed Plan~~ includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details)."
B6-22	3.3-3, Carbon Monoxide, fourth sentence. Please consider rewording – perhaps "not photochemically reactive" or "not an ozone precursor". It is a reactive compound, burning easily and binding to hemoglobin much more readily than oxygen.	The sentence has been revised as follows: "CO is an ~~non-reactive~~ air pollutant that dissipates relatively quickly and is not photochemically reactive; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic."

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B6-23	3.3-5, Table 3.3-1, Notes 4 and 5. For Note 4, please consider updating the expected designation date. For Note 5, please consider removing it from the Federal Standards Classification column for lead and adding it to the State Standards Classification column for both lead and vinyl chloride.	Note 4 has been revised as follows: "To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). ~~The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.~~ As of December 31, 2018, the Bay Area is in attainment of federal standards for sulfur dioxide per the US Environmental Protection Agency (EPA)." Table 3.3-1 on page 3.3-5 of Chapter 3.3: Air Quality has been revised to remove the Note 5 superscript from the Federal Standards Classification column for leas and to add the Note 5 superscript to the State Standards Classification columns for both lead and vinyl chloride.
B6-24	3.3-6, second paragraph, second sentence. Please consider rewording. The sentence appears to read that the air basin exceeded the state one-hour standard five times and the federal one-hour standard two times when Table 3.3-1 shows no federal one-hour standard. If the sentence is attempting to read that the the state one-hour standard was exceeded five times and the federal eight-hour standard was exceeded two times, please write that.	The paragraph has been revised as follows: "The most recent set of monitoring data from the Jefferson Street site indicates that ozone levels in Napa did not exceed federal standards in 2017 but did exceed state standards one day per year. In both 2013 and 2017, 8-hour ozone levels basin wide exceeded both state and federal standards on two days per year. Neither state nor federal standards for 1-hour or 8-hour ozone levels were exceeded between 2014 and 2016. ~~During this same period, 1-hour ozone levels basin-wide exceeded state standards on five days per year and federal standards on two days per year. During this same period, 8-hour ozone levels basin-wide exceeded state standards on six days per year and federal standards on two to six days per year, depending on the exact standard used.~~"
B6-25	3.3-8, Federal Clean Air Act, first paragraph, second sentence. Consider changing "CAA" reference to the California Clean Air Act to CCAA. Further, consider moving the entire sentence on the CCAA to the following section covering that law.	The sections have been revised as follows: "Federal Clean Air Act The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CAA). At the federal level, the U.S. EPA administers the CCAA. Regulations under the CCAA are described below. State Air Quality Standards California Clean Air Act The California Clean Air Act (CCAA) is administered by CARB at the state level and by the Air Quality Management Districts at the regional and local levels. BAAQMD regulates air quality at the regional level for the nine-county Bay Area, including the City of St. Helena and Napa County. Under the CCAA, the U.S. EPA has established concentration-based

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		NAAQS for criteria air pollutants (see Table 3.3-3) and has identified hazardous air pollutants, for which emissions standards are developed. The NAAQS are periodically reviewed as new health information is made available."
B6-26	3.3-14, Bay Area Air Quality Management District, second paragraph, first sentence. What is, "The air quality study area…"? If it is the planning area, please so state; if it is some other area, please describe how it is related to the planning area.	The sentence has been revised as follows: ~~The air quality study~~ planning area falls under the jurisdiction of BAAQMD."
B6-27	3.3-24, CR1.7. Consider altering the sentence to read "...with the owners ..." or perhaps "... with the new owners ..." - although not so new anymore.	The comment suggests a revision to a Draft General Plan Update policy and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B6-28	3.3-30, Applicable Control Measures, first paragraph. Please capitalize "Buildings" (#4	The sentence has been revised as follows: "The control measures are classified for the following nine general sectors: (1) Stationary Sources; (2) Transportation; (3) Energy; (4) ~~b~~Buildings; (5) Agriculture; (6) Natural and Working Lands; (7) Waste Management; (8) Water; and (9) Super-GHG Pollutants."
B6-29	3.3-31, Table 3.3-6, TR8. Please consider rewording as St. Helena is not the only rural community in the Bay Area and opportunities for ridesharing services and incentives are well more than "somewhat" limited. Would suggest the deletion of "relatively" and "somewhat" and the addition of "most" between "to other"	The sentence has been revised as follows: "St. Helena is ~~relatively~~ rural ~~compared to other Bay Area communities~~, so opportunities to effectively expand rideshare services and incentives are ~~somewhat~~ limited compared to most other urban Bay Area communities."
B6-30	3.3-37, Table 3.3-7, Note 2. Please consider deleting "...such as the Proposed Plan," as unnecessarily repetitive. 3.3-38, Table 3.3-8, Note 2. Please see above. Also consider "general plan" rather than "specific plan".	Table 3.3-7, Note 2 has been revised as follows: "BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire general plan such as the Proposed Plan." Table 3.3-8, Note 2 has been revised as follows: "BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire general ~~specific~~ plan ~~such as the Proposed Plan~~."
B6-31	3.3-42, AQ-1, fifth bullet. "Laying building pads ..."- is this intended to read "Pour"? In addition many structures in St. Helena have live, not poured floors. Is there a suggestion for those structures as well?	The comment is noted. "Laying building pads" has the same meaning as to pour or build a slab foundation and no change is necessary. The mitigation measure refers only to poured floors in an attempt to minimize construction-related impacts on air quality for new developments.

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B6-32	3.3-42, AQ-1, seventh bullet. Is the check by the certified mechanic (and certified by who for what?) supposed to take place each day, month, project? 3.3-42, AQ-1, eighth bullet. Consider adding "for example" just after the parenthetical statement begins. 3.3-42, AQ-1, what should be the tenth bullet. Consider placing a bullet before "Where warranted" and removing the underline. Also consider tabing in the next two paragraphs and beginning them with "Power" and "Ensure", respectively.	AQ-1, Bullet 7 on page 3.3-42 has been revised as follows: "Maintaining and properly tuning all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified automotive mechanic and determined to be running in proper working condition prior to operation at the beginning of each project." AQ-1, Bullet 8 has been revised as follows: "Staging construction equipment as far as possible from existing sensitive receptors (for example, away from the southeast property line and surrounding residences)." AQ-1, Bullet 10 has been revised as follows: "Where warranted, the project sponsors shall incorporate the following language into construction specifications if significant risk is anticipated based on design level construction schedule, duration and concurrent construction activities:" The sentence has been updated to remove the underline and create a new bullet, and is followed by the subsequent sub-bullets. The bullets have been tabbed to be sub-bullets within the tenth bullet, and have been revised as follows: "•Where warranted, the project sponsors shall incorporate the following language into construction specifications if significant risk is anticipated based on design level construction schedule, duration and concurrent construction activities: -Power~~ing~~ portable equipment by electricity if available or if electricity is not available, using propane or natural gas if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. -Ensure~~ing~~ that all mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days continuously or 20 hours cumulative meets, at a minimum, U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent and be equipped with diesel particulate matter filters that meet CARB-certified Level 2 or 3 Diesel Particulate Filters. Alternatively-fueled equipment (i.e., non-diesel) would meet this requirement."

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B6-33	3.3-47, second paragraph, first sentence. Consider "21-year".	The sentence has been revised as follows: "Construction activities under the Proposed Plan would be dispersed intermittently over a ~~22~~ 21-year period and would not expose an individual to a continuous source of pollution."
B6-34	3.3-48, second paragraph, second sentence. Please consider ending the sentence with "approval" or perhaps "action by the city".	The sentence has been revised as follows: "Additionally, Mitigation Measure AQ-3 requires any new use with the potential to generate point source pollution to be referred to the BAAQMD for review and comment prior to ~~adoption~~ action by the city.
B6-35	3.3-48, Gasoline Stations. Wasn't Flyers near the corner of 29 and Inglewood in area 3? It is now an open and operating Mobil station.	The section has been revised as follows: The City of St. Helena currently has ~~three~~ four gas stations located along State Route 29: Chevron, 76, ~~and~~ Napa Valley Petroleum, and Mobil. ~~A fourth gas station, Flyers, is permanently closed and~~ The Mobil gas station, previously Flyers, is located outside of the Planning Area."
B6-36	3.3-50 Table 3.3-9. Consider including the address of Nella Oil and capitalizing "Main" in the address for St. Helena Petroleum.	Table 3.3-9 on page 3.3-50 has been revised as follows: "St Helena Petroleum, Gasoline Station Plant G8851 1153 ~~m~~Main Street" The address of Nella Oil has been updated to "800 St. Helena Highway."
B6-37	3.4-1, Habitat Types, first sentence. Consider the wooded hillside and the interspersed housing on and near Howell Mountain Road on the east side of the city and alter the sentence accordingly.	The sentence has been revised as follows: "St. Helena is characterized by a mix of urban development and agricultural uses with ~~some undeveloped wooded hillsides to the east and west of the city center and~~ wooded hillsides interspersed with residential development to the east and west of the city center."
B6-38	3.4-4, Orchard-Vineyard, fifth sentence. It is probably an exaggeration to claim that "...under the vines are usually sprayed with a herbicide ...", as there are many organic and semi-organic growers in the region. Consider "sometimes" or even "often".	The sentence has been revised as follows: "Rows under the vines are often sprayed with herbicides to prevent growth of herbaceous plants, with the exception of organic and semi-organic vineyards."
B6-39	3.5-2, third and fifth paragraphs. Please consider removing all of the quotation marks.	The third paragraph on page 3.5-2 has been revised as follows: "Evidence of Emergent Period occupation, including Rattlesnake Series and Stockton Series projectile points, is commonly found at sites in St. Helena and the vicinity." The fifth paragraph on page 3.5-2 has been revised as follows: "This settlement pattern is similar to the tribelet or village community typical of most California groups at the time of Euro-American contact (Kroeber, 1932) (Kroeber, Handbook of the Indians of California, 1925)."

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B6-40	3.5-4, third paragraph, first sentence. Calistoga will probably be surprised to find it is not in the Napa valley. Is this supposed to read "... extended from St. Helena to Calistoga ..."?	The sentence has been revised as follows: "After 1868, when the railroad was extended from St. Helena ~~the Napa Valley~~ to Calistoga, the largely open, sparsely-setting farmland was rapidly parceled out."
B6-41	3.5, Figure 3.5-2. The figure includes 1380 Main Street. Wasn't that the old gas station that has been removed?	This comment is noted. Originally built in 1932, the historic gas station at 1380 Main Street was identified as a contributing historical resource in 2006, but was later demolished in 2014 and is now an office/retail building. Figure 3.5-2 in Chapter 3.5: Cultural, Historic, and Tribal Cultural Resources has been revised to reflect this change.
B6-42	3.6-7, second paragraph, first sentence. Please consider writing out ozone. In addition "higher O3 days" means more days exceeding state and/or federal standards, higher concentrations or both?	The sentence has been revised as follows: "Some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more days of higher ozone concentration ~~O3 days~~ per year, larger forest fires, and more drought years."
B6-43	3.6-8, Energy Star Program, second to the last sentence. Please consider deleting "though a Rater" as unneeded. If it is desirable to retain the phrase, consider "as determined by an approved rater".	The sentence has been updated as follows: "To earn the Energy Star certification in California, site-built or modular homes must meet energy efficiency the performance target as determined by energy modeling through a CEC-approved software program, construct the home using the preferred set of efficiency measures, and verify that the home meets every item on the National Rater Checklist as determined by an approved rater ~~through a Rater~~."
B6-44	3.6-17, Executive Order S-1-07. Please consider writing out "LCFS" the first time it is used in the paragraph.	The sentence on page 3.6-13 under heading Executive Order S-1-07 has been revised as follows: "Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO2e gram per unit of fuel energy sold in California."
B6-45	3.6-17, Plan Bay Area, first and third paragraphs. Consider writing out PDA in the first paragraph, rather than the third.	The first paragraph on page 3.6-17 has been revised as follows: "The Plan assists jurisdictions seeking to implement the Plan at the local level by providing funding for Priority Development Area (PDA) planning and transportation projects." The third paragraph on page 3.6-17 has been revised as follows: "Plan Bay Area also identifies strategic investments that provide support for focused growth in PDAs ~~Priority Development Areas~~ (of which St. Helena has none, due to its small size and limited public transportation infrastructure), including the new One Bay Area Grant program."

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B6-46	3.6-17, BAAQMD, first sentence. As is noted correctly elsewhere in the document, the BAAQMD covers most, but not all of the nine Bay Area counties. Please consider adding "most" to the sentence.	The sentence has been revised as follows: "The Bay Area Air Quality Management District (BAAQMD) has local jurisdiction over air quality in most of the San Francisco Bay Area, including projects in the Planning Area."
B6-47	3.6-26, LU1.A. Consider rewording. State statute allows the division of single family homes into two units (one main unit and an ADU) by right. 3.6-31, PS1.I. Consider updating the reference to the BAAQMD's 2000 CAP to the 2017 CAP. 3.6.31, CC1.B. Consider updating by deleting the reference to a new transit center. NVTA has a new transit center just off Soscol Avenue in Napa. 3.6-33, CC3.A and CC3.B. Please consider shifting the deadline for these two new programs; while a 2020 target was fine in 2010, it is too short for a GP that will not be adopted until halfway through the first quarter of 2019. 3.6-33 and -34, CC4.4 and CC4.J. The first calls for expanding the city's urban forestry program, while the second calls for the establishment of such a program. Shouldn't the policy call for the creation of the program as well as the implementing action if such a program does not exist? And if the program does exist, then the implementing action needs correction. Consider determining which is correct and then crafting the policy and implementing action accordingly.	The comment suggests a revision to a Draft General Plan Update policy and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B6-48	3.6-36, Impact 3.6-1. Please consider including per year with the emissions target. Note that sometimes it is included in the chapter and sometimes it is not - leading to some possible confusion.	All references to the efficiency metric have been revised to read MTCO2e per service population per year. All references to total emissions remain MTCO2e per year.
B6-49	3.6-39, Transportation Improvements. The Wine Train is not - according to court determination - a transportation service; please do not reference it as such, imply that it is a transportation service or claim it is useable as a transportation service. There is no "Napa Valley Transit Authority"; please correctly reference the agency. Napa County does not provide transit services; thus partnering with the County of Napa will not be successful. NVTA operates all of the public transit based in the Napa communities	The section has been revised as follows: "The City of St. Helena is accessible to neighboring communities via public transit and visitor-oriented rail service. The city is served by Napa Valley Transportation Authority (NVTA) bus routes ~~and the Wine Train~~, which connect St. Helena to Napa, Calistoga, and other surrounding cities. NVTA also runs the Vine para-transit shuttle, which is an on-call shuttle service for persons with disabilities. Proposed Plan policies seek to further transit improvement efforts by enhancing bus

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		and para-transit services, providing shuttle services, and partnering with NVTA ~~Napa County~~ to increase transit service and ridership (Policy 1.3 and implementing actions CC1.B and CC1.E). ~~Policies within the Circulation Element also look to explore options to utilize the Wine Train as a means to reduce VMT and driving trips (Policy CR1.7).~~"
B6-50	3.6-44, Plan Bay Area. Please consider rewording. Some sections of the document credit MTC with the RTP/SCS, others credit both MTC and ABAG and this seemingly credits ABAG alone. Consider determining which is correct and remaining consistent.	The section has been revised as follows: "The ~~ABAG~~ RTP/SCS adopted by MTC and ABAG, Plan Bay Area, includes a set of policy objectives related to mobility, system preservation and safety, social equity, healthy environment, and economic growth. The RTP will assist in ~~ABAG's~~ ABAG jurisdictions' implementation of SB 375, the California Global Warming Solutions Act of 2006, and regional GHG targets."
B6-51	3.7-17. Two sections on this page cover the Disaster Mitigation Act. Please consider combining the sections.	The comment is noted. The first section provides context for the Disaster Mitigation act as a federal regulation, while the second section provides local and state-level context. The two section have been combined under the State Regulations heading as follows: "Disaster Mitigation Act of 2000 The Disaster Mitigation Act of 2000 is a federal regulation which requires a state mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. In addition, the Disaster Mitigation Act also established a requirement for local mitigation plans. The Disaster Mitigation Act of 2000 (DMA2K) (Public Law 106-390) also amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 to establish a Pre-Disaster Mitigation (PDM) program and new requirements for the federal post-disaster Hazard Mitigation Grant Program (HMGP). DMA2K encourages and rewards local and state pre-disaster planning. It promotes sustainability and seeks to integrate state and local planning with an overall goal of strengthening statewide hazard mitigation. This enhanced planning approach enables local, tribal, and state governments to identify specific strategies for reducing probable impacts of natural hazards such as floods, fire, and earthquakes. In order to be eligible for hazard mitigation funding after November 1, 2004, local governments are required to develop a Hazard Mitigation Plan that incorporates specific program elements of the DMA2K law. In the Bay Area, the Association of

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		Bay Area Governments (ABAG) has adopted a multi-jurisdictional FEMA-approved 2010 Local Hazard Mitigation Plan Update, which cities and counties can adopt and use, in full or in part, in lieu of preparing all or part of a Local Hazard Mitigation Plan themselves (ABAG, 2010). The City of St. Helena has not adopted ABAG's multi-jurisdictional Plan but has participated in the Napa County Operational Area Hazard Management Plan."
B6-52	3.7-17, State Multi-Hazard Mitigation Plan, first sentence. Please consider adding "... which allows the state..." after "State of California".	The sentence has been revised as follows: "The State Hazard Mitigation Plan (SHMP) is a federally required official statement of the state's hazard identification, vulnerability analysis, and hazard mitigation strategy (44 Code of Federal Regulations, Subpart M, Section 206.401) under the DMA2K for the State of California which allows the state to receive federal funds for disaster assistance grant programs."
B6-53	3.8-1, bullet points, second to the last sentence. The Pratt Street bridge may well be partially in the city and partially in the county – the county maintains the bridge. Please check and modify the sentence accordingly.	The bullet point has been revised as follows: "The Pratt Street Bridge is also a crossing of the Napa River partially within St. Helena and partially within the larger Napa County; however, it is currently closed due to a landslide. The County is responsible for maintenance of the bridge but has not provided a schedule of the planned opening of the bridge."
B6-54	3.8-2, first paragraph, last sentence. Please consider deleting "... to a limited extent ..." as methane is a hazardous material and is used extensively in residential areas.	The sentence has been revised as follows: "Hazardous materials are commonly used in commercial, agricultural and industrial applications, as well as in residential areas in the case of methane. ~~to a limited extent.~~"
B6-55	3.8-2, Hazardous Materials Transport, fourth sentence. Please consider deleting "...occasionally runs freight service ..." as it is non-existent in the St. Helena block and has been for years.	The sentence has been revised as follows: "The Napa Valley Wine Train, which typically runs service for tourists through Napa Valley and runs through the City of St. Helena, ~~occasionally runs freight service, and~~ could be used to transport hazardous materials (Giaccio, 2018)."
B6-56	3.8-4, last paragraph, last full sentence. Consider rewording. The next five years would be out to 2023 or 24, not 2020.	The site referenced in the comment requires a 5-year review report due by the year 2020. The sentence has been revised as follows: "Groundwater cleanup of this site is nearing completion, with DTSC requiring monitoring wells to be in place for the next five years until the year 2020, when a five year review report is due (Department of Toxic Substances Control, 2018)."
B6-57	3.8-5, Table 3.8-1. The Noble site at 1132Main Street is listed twice and it is not clear if this is due to an error or two different locations on the same property. The PG&E property is also listed twice, as is the property at 607 Highway 29,	The Noble site at 1132 Main Street listed in Table 3.8-1 and addressed in the comment is listed twice under the SWQCB Cleanup Sites heading, but is in fact the same site. Table 3.8-1 has been revised to remove the duplicate

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	under SWRCB and DTSC locations. Are these double listings actually separate sites or the same sites as carried by different agencies? If they are the same sites, the total number of sites as depicted in the paragraph directly above the Table is not correct. The Table does not seem to identify the Mobile station near Inglewood and SR 29 as an SWRCB permitted site but does note it as a LUST site. Please clarify.	listing of the Noble site. The PG&E site at 1301-1301 Mitchell Drive listed under both the SWQCB Cleanup Sites and DTSC Cleanup Sites. While both listings refer to the same site, cleanup actions at the PG&E site are carried out by two separate agencies and remain in Table 3.8-1. The sentence in the proceeding section has been revised as follows: "A shown on Table 3.8-1 and Figure 3.8-2, of the 40 41 total hazardous materials sites in the Planning Area, 35 36 are now listed as closed cases by their regulatory agency." The SWQCB Geotracker tool identifies Tesoro (Flyers) at 800 St. Helena Highway as a Permitted Underground Storage Tank (UST). The Mobil station discussed in the comment has since replaced the original Flyers gas station at this location. Table 3.8-1 has been revised to include Mobil as an additional Permitted UST and the proceeding sentence has been updated with accurate totals. The updated numbers include the removal of the duplicate Noble site record, consideration of only one PG&E site in the total, and the additional Permitted Underground Storage Tank.
B6-58	3.8-16, California Health and Safety Code, second sentence. Please consider changing the reference to Napa County from Alameda County.	The sentence has been revised as follows: "In Napa ~~Alameda~~ County, these two programs are referred to as the Hazardous Materials Business Plan (HMBP) program and the California Accidental Release Program (CalARP)."
B6-59	3.8-27, Impact 3.8-3, first paragraph, next to the last sentence. The St. Helena Catholic School has closed and it is not expected to reopen.	The sentence has been revised as follows: "While nearly all schools within the Planning Area are within a one-quarter mile buffer of agriculture land uses, only two ~~three~~ schools (St. Helena High School, and St. Helena Primary School, ~~and St. Helena Catholic School~~) are open and in close proximity to industrial land uses."
B6-60	3.9, Figure 3.9-3. Please consider changing the percentage chance shown in the key for 500-year events to 0.2%.	The key for Figure 3.9-3 has been revised as follows: "500-Year Flood Zone (0.2% ~~2%~~ Annual Chance Flood Hazard)."
B6-61	3.10-3, Table 3.10-1. Please change "Row" to "ROW" after "Transportation/Road".	The entry in Table 3.10-1 has been revised to read "Railroad Row" instead of "Railroad ROW."
B6-62	Figure 3.10-1. Valley View Avenue appears to be incorrectly labeled as Crane Avenue. The incorrect label also appears on other maps (see, for example, Figure 3.11-1), but not all, in the document.	The comment is noted. All mislabeled figures in the DEIR have been updated to correctly label the roadway segment between Spring Street and Charter Oak Avenue as Valley View Street.
B6-63	3.10-14, California Public Utilities Commission, last sentence. According to adjudicated determination, the city has significantly more than "some" authority	The sentence has been revised as follows: "The City has ~~some~~ authority to regulate specific uses and activities."

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	to regulate particular activities of the excursion rail service – for selected actions, the decision is solely the city's. Please consider deleting "some".	
B6-64	3.10-20, LU1.4. Please consider making "LU1.6" the beginning of a new bullet section 3.10-21, LU1.E. Please consider making "LU2.1" the beginning of a new bullet section. 3.10-21, LU5.2. Please consider ending the sentence with one period.	A new bullet with LU1.6 has been added to page 3.10-20, a new bullet with LU2.1 has been added to page 3.10-20, and the duplicate period has been removed from the LU5.2 bullet on page 3.10-21.
B6-65	3.11-7 & 8, Table 3.11-3. Please consider clarifying either though a note or an addition to the title that the nose levels were calculated based partly on traffic counts. It is also curious that Note 2 states that the truck volumes were set at two percent for all roadways. However, the truck volumes for Main Street are available from Caltrans and are significantly higher than two percent. Why was the more accurate Caltrans figures not utilized? Further, Note 3 states that the speeds were assigned based on road type while the posted speeds are readily available.	The comment is noted. On page 3.11-8, Table 3.11-3 contains a note stating the following: "Notes: 1. Traffic volumes are per Fehr & Peers data received August 1, 2018. 2. Truck percentage assumed to be 2% for all roadways. 3. Speeds are estimated based on roadway type." Note 1, which addresses traffic volumes, implies that the existing noise traffic levels are based on traffic counts. No change is necessary. Noise levels for Main Street were calibrated directly based on noise measurements on-site. Therefore, the assumed parameters stated in Notes 2 and 3 do not apply to Main Street. Truck volumes are not available from Caltrans for all roadways within the Planning Area, thus Note 2 stands. Speeds were assigned based on road type rather than posted speeds in order to account for variation throughout the day in actual volume and speed of cars. The Notes section of Table 3.11-3 has been revised as follows to clarify this exception: "Notes: 1. Traffic volumes are per Fehr & Peers data received August 1, 2018. 2. Noise levels for Main Street calibrated directly based on noise measurements on-site. 3.2. Truck percentage assumed to be 2% for all roadways, with the exception of Main Street. 4.3. Speeds are estimated based on roadway type."
B6-66	3.11-19, PS2.D. Is Ldn the same as DNL? If so, please consider being consistent in the use of terms. If not, please include in the definition of terms, Table 3.11-1.	The comment is noted. Ldn and DNL both refer to the day-night average sound level, and can use interchangeably. This is noted in Table 3.11-11 on page 3.11-27. A sentence within the Railway subheading on page 3.11-8 has been revised as follows: "Day-night average noise levels are calculated to be 64 dBA ~~Ldn~~ DNL at a distance of 50 feet from the tracks assuming four trips per day between the hours of 7:00 a.m. and 10:00 p.m." However, this comment refers specifically to a General Plan policy and not the adequacy of the DEIR, so no change to PS2.D on page 3.11-19 is necessary.

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B6-67	3.11-20, PS2.H. Please consider deleting "vehicles and motorcycles" as it would likely be illegal to "regulate" them in such a way as to restrict access to residential (or nearly any) publicly owned street which may be adjacent to sensitive receptors, as defined.	The comment suggests a revision to a Draft General Plan Update policy and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B6-68	3.1-23,Table 3.11-11. Please see comment for Table 3.11-3.	Please see response to comment B5-A-65, above.
B6-69	3.11-29, first paragraph. This paragraph claims that the proposed plan sets thresholds in CNEL while on page 3.11-19, where the relevant polices of the proposed plan are depicted, the term used, particularly in PS2.C, is LAdn. Are these terms identical? LAdn does not seem to appear in the Definition of Terms, Table 3.11-1. Please consider the consistent use of terms, particularly for the lay reader.	The comment is noted. LAdn is the A-weighted day-night level of noise measured in A-weighted decibels (dbA), and is useful for describing transportation noise resulting from aircraft and vehicle activities. The terms LAdn and Ldn can be used interchangeably. CNEL is the average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am. For practical purposes, the tems LAdn, Ldn, DNL, and CNEL can be used interchangeably, as noted in Table 3.11-11.
B6-70	3.12-2, Table 3.12-1, Please consider deleting "Other:" as it only applies to the fire marshal.	The entry in Table 3.12-1 has been updated to read "Fire Marshal" instead of "Other: Fire Marshal."
B6-71	3.12-6, Libraries, first paragraph. The data in the paragraph is putatively from the 2015-16 fiscal year, but the year reported in the citation is 2015. Please clarify.	The citation refers to email communication with Chris Kreiden, the Library Director of the City of St. Helena, in 2015 and 2018. The citation refers to information provided by Mr. Kreiden regarding the adequacy of the facility to house the Children's department, provide study space, and offer sufficient space or parking for events. This comment refers to visits and circulation in the 2015-16 fiscal year, discussed in the second to last sentence of this paragraph. This information was obtained from the California State Library 2016 report. The paragraph has been revised as follows to clarify sources: "In 2015-16, the library had 51 visits per hour open and circulated 239,862 items (California State Library, 2016). The existing library facility does not adequately house the Children's department, provide enough private study areas for students, or offer sufficient space or parking for hosting events, which, collectively, were attended by over 17,000 individuals, most of whom drive automobiles to the library (Kreiden, 2015)."
B6-72	3.12-7, Table 3.12-3, Community. There are eight bocce courts in Crane Park.	The entry in Table 3.12-3 on page 3.12-7 has been revised as follows: "Six lighted tennis courts; ~~six~~ eight lighted bocce courts; two Little League baseball fields; horseshoe pits; children's playground; two restrooms; picnic areas; Farmer's Market; skate park:

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B6-73	3.12-9, Figure 3.12-2. Please consider identifying Lewis Station.	The comment is noted. Lewis Station is a "pocket park" located on the corner of Church Street and Hunt Avenue, and offers two picnic tables, some benches, and one restroom. While Lewis Station is a park, the scale of the facility is too small to be identified on the map. Church Street itself is not labeled in Figure 3.12-2 due to size constraints. Lewis Station is identified as a mini park in Table 3.12-3 on page 2.13-7.
B6-74	3.12-11, first paragraph, second to the last sentence. Why is the city of St. Helena cited when the section references state code dealing with school districts?	The reference to the City of St. Helena has been moved to the last sentence of the paragraph on page 3.12-11 to accurately cite the school district's policy. The section has been revised as follows: "As provided in California Government Code Section 65996, the payment of such fees is deemed to fully mitigate the impacts of new development on school services (City of St. Helena, 2017). Pursuant to this provision, the school district has enacted a requirement for fees (City of St. Helena, 2017)."
B6-75	3.12-12, Napa County General Plan Recreation and Open Space Element. Why is there no reference to the Napa County Regional Park and Open Space District and that agency's adopted parks master plan in any section?	The comment is noted. The Napa County Regional Park and Open Space District Master Plan lists future projects undertaken by the District but does not necessarily implement policies which regulate development within the planning area. Nonetheless, the following section has been added to the Regulatory Settings on page 3.12-12: Napa County Regional Park and Open Space District Master Plan In November of 2006 Napa County voters approved Measure I establishing the Napa County Regional Park and Open Space District. The District is authorized to protect and preserve natural areas, wildlife habitat and other open space resources, and to plan, improve and operate a system of public parks, trails, outdoor recreational facilities, and outdoor science and conservation education programs. Its jurisdiction includes all of Napa County, including the Planning Area. The District's Master Plan was published in 2009 to discuss ongoing District activities, funding, and projects and was last updated in 2012. The 2012 Master Plan Update documents progress on the 61 projects originally identified in the Plan, including ten open space parks and regional trails which the District has committed to owning and managing. Parks and open spaces under the jurisdiction of the District may be utilized by residents and visitors to the Planning Area.

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B6-76	3.12-16, Fire Service. The data in the paragraph for response times and calls is from 2017, but the citation is 2015. Please clarify	The citation refers to email communication with John Sorenson, the City of St. Helena Fire Chief, in 2018. The sentence has been revised as follows: "In 2017, the Department responded to approximately 69 percent of all calls in fewer than seven minutes, and the department does not anticipate the need to increase staffing levels or construct a new facility in order to provide service for future population growth (Sorenson, 2018 ~~2015~~)."
B6-77	3.12-16, Police Service. Please consider using information from the recent SHAPE study on the adequacy of the existing station.	The comment is noted. The SHAPE study determined that the existing Police Station is in fair but deteriorating condition, and suggests rebuilding the Police Station adjacent to the existing Fire Station in order to increase efficiency and provide new facilities. Proposed Policy LU6.1 encourages the provision of high quality facilities for public services, but the General Plan Update would not implement the SHAPE study suggestion discussed above. The DEIR therefore assesses the potential environmental impacts of implementation of the General Plan Update alone, and concludes that the growth-inducing impacts of the Plan would not necessitate the construction of new facilities in order to maintain acceptable service levels.
B6-78	3.12-19, second paragraph, first sentence. Please reword. There are two state parks, not regional parks, in Napa county just outside St. Helena. Both are operated under contract to the state by the Park and Open Space District.	The sentence on page 3.12-19 has been revised as follows: "Furthermore, as described above there are two state ~~regional~~ parks in Napa County, which are about 5 miles away from St. Helena and provide additional recreational resources."
B6-79	3.13-2, last paragraph. While it is true that the most of the jobs available in St. Helena do not pay sufficiently to afford a home in the community thus exacerbating the in in-commute as the paragraph correctly claims, it is also likely that the high housing costs also, but to a lesser degree, exacerbate the out-commute for those who seek and need a higher-paying job to live in the community than is generally offered locally. Thus the high housing costs contribute not only to a higher in-commute but a higher out-commute as well.	The comment is noted. See response to comment A3-A-4, above.
B6-80	3.13-3, SR 29, first and third sentences. Please consider rewording. SR 29 in Napa county is not solely a two to four lane rural highway. It also has a freeway segment, an expressway segment and some other types of roadways. In addition, consider rewording the third sentence as the turn lane is not continuous between Dowdell and Madrona – it is missing or has a double-double yellow in two locations.	These comments are noted, and the response combined for purposes of clarity. The paragraph has been revised as follows: "SR-29 is a State ~~two- to four-lane rural~~ highway that stretches through Napa County from Vallejo at Napa County's southern border to Lake County in the north. Portions of SR-29 to the south of the City of St. Helena are freeway and expressway facilities. Within the City of St. Helena, SR-29 has two travel lanes, one northbound and one southbound. SR-29 has parallel parking on both sides of the street and a non-continuous center turn lane between Dowdell Lane

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		and Madrona Street-Fulton Lane. SR-29 provides the primary route for travel within St. Helena and to further destinations around the region."
B6-81	3.13-3, SR 29, second paragraph. Please consider providing evidence that X-X trips are presently diverting in significant numbers to local roadways in the city. Without such evidence, an old chestnut is reenforced that can lead to unhelpful projects and programs. It may become a problem in the future, but currently the traffic on those streets appears to be almost purely local. The Silverado Trail is a special case, in that it works as nearly a couplet with SR 29 and given the very small length of the Trail that is within the city – the trips on the Trail for the City are nearly all X-X, X-I or I-X with no or nearly no I-I trips possible.	This comment is noted. Trip diversion to parallel local routes typically ocurrs on a case-by-case basis, whereas Silverado Trail is a longer, more well-known parallel route. The congestion along SR 29, while recurring, varies in severity within the city limits on a day-by-day basis. The paragraph has been updated as follows: "Since SR-29 is a major north-south thoroughfare for Napa County, heavy through traffic is typical along SR-29. Drivers often try to avoid congestion on SR-29 by using Silverado Trail to the east ~~and alternate parallel routes through residential neighborhoods such as Oak Avenue and the Valley View/Crane Avenue corridor.~~"
B6-82	3.13-3, SR 29, last paragraph. Please reword. The channelization project actually goes back three decades to a time when maintenance projects were listed in the STIP and were debited to the county minimums. The project was split into two pieces and the first segment was completed in the 90's (Yountville to Mee Lane). When the STIP and SHOPP were split, the second half did not migrate to the SHOPP until the Napa communities traded the STIP funds to the Trancas/29 interchange to fill a shortfall and requested moving the Mee Lane to Charter Oak segment to the SHOPP. It may well have been the oldest STIP/SHOPP programmed project in the state by the time it was actually constructed.	The comment is noted. The paragraph has been revised as follows: "The Highway 29 Channelization Project was undertaken by the California Department of Transportation (Caltrans) and was intended to rehabilitate pavement, widen northbound and southbound shoulders, construct a two-way left turn lane, and improve the railroad crossing at Whitehall Lane along SR-29. ~~The project limits were Mee Lane approximately 1.97 miles south of the St. Helena city limits to Charter Oak Avenue in the north, within the city limits.~~ The effort to rehabilitate SR 29 has been underway for three decades, and the first segment of the project between Yountville and Mee Lane was completed in the 1990s. The second half of the Channelization Project was proposed by Caltrans in 2007, prior to the 2009 commencement of the Proposed Plan project by the City of St. Helena. The project limits were Mee Lane approximately 1.97 miles south of the St. Helena city limits to Charter Oak Avenue in the north, within the city limits. The Channelization Project was constructed in 2017 and is now fully complete and operational."
B6-83	3.13-4,Figure 3.13-1. The figure includes and rates several private roads. Is that intentional?	This comment is noted. The purpose of the roadways on the figure is to provide reference to the transportation system as a whole. Also, the provision of roads on the figure provide additional context for the reader.
B6-84	In addition, please consider the rating of Madrona west of Hudson. It has few houses but sizable vineyards face the street. The city may also have an	This comment is noted. Madrona Avenue west of Hudson has been downgraded on the figure to a thinner linetype more indicative of the rural nature of the street.

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	agreement with one of the adjacent owners on the character of the street, which is intended to be rural, not residential.	
B6-85	3.14-6, Madrona Street/Fulton Lane, last sentence. Please consider removing the quotes around dead end.	The comment refers to Chapter 3.13: Transportation and Traffic. The sentence has been revised as follows: "To the east of SR-29, Madrona becomes Fulton Lane which provides dead end access to commercial and residential areas."
B6-86	3.13-16, second paragraph, second sentence. Please consider another example that is a public and not private road.	This comment is noted. Because the sentence is intended to be a general discussion regarding pedestrian facilities at the periphy of the City, the reference to the Dean York neighborhood has been removed. The sentence on page 3.13-16 now reads: "~~Areas such as the Dean York neighborhood, and a~~Areas adjacent to or outside the Urban Limit Line (ULL) have a rural character where concrete sidewalks (with curb and gutter) may not fit with the context of the neighborhood. "
B6-87	3.13-17, Rail Service. The Wine Train is not a passenger service, please consider another term for its ridership.	The comment is noted. However, the section clearly indicates that the Wine Train is a "private tourist rail service" and "passengers are not allowed to embark and disembark at St. Helena unless booked on a special tour package." The use of passengers is accurate given the context that only private tourists are able to use the service. The heading of the section has been updated to read "Private Rail Service." Further changes are not necessary for this section given that the Wine Train is a useful form of transportation for tourists who have privately booked its services.
B6-88	3.17-20, Environmental Assessment Review and Comment, last sentence. Please consider replacing "Rohnert Park" with "St. Helena".	This comment is noted, and refers to Chapter 3.13: Transportation and Traffic. The sentence has been updated as follows: "However, the ultimate mitigation measures and their implementations are to be determined based on consultation between Caltrans, the City of St. Helena ~~Rohnert Park,~~ and the project proponent."
B6-89	3.17-21, first paragraph,last sentence. Please consider deleting as it has noting to do with the STIP and Caltrans duties and powers were described in an earlier section.	The comment is noted, and refers to Chapter 3.13: Transportation and Traffic. The section has been updated as follows: "The California Transportation Commission (CTC) administers transportation programming, the public decision-making process that sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multi-year period to transportation projects. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State highway system, funded with revenues from the State Highway Account and

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		other funding sources. ~~The California Department of Transportation (Caltrans) manages the operation of State highways, including SR 29 through St. Helena."~~
B6-90	3.17-22, Metropolitan Transportation Commission. Please consider rewording. MTC does not allocate funds under the control of transportation sales tax authorities, which is a very large portion of the funds expended on transportation projects in the Bay Area. The RTP is not an allocation document and in and of itself releases no funds. It does allow projects to proceed to programming and allocation in other documents and programs.	This comment is noted. References to MTC as allocating local sales tax funds have been removed; references to MTC allocating state/regional funding have been revised. The related paragraph has been revised as follows: "The majority of federal and~~,~~ State~~, and local~~ financing available for transportation projects is ~~allocated~~ programmed at the regional level by the MTC, the transportation planning, coordinating, and financing agency for the nine-county Bay Area. MTC prepares the regional transportation plan (RTP), which is a long-range development plan for ~~allocating~~ identifying and programming projects that may be funded by state and federal transportation funds in the future. The MTC approved the Plan Bay Area in 2017 to guide future regional transportation through the year 2040. The RTP does not include any major regional transportation projects such as changes to SR-29 in St. Helena. Plan Bay Area also serves as the Sustainable Communities Strategy (SCS) document for the nine-county Bay Area region."
B6-91	3.13-17, NVTA. Please consider rewording to be very clear which agency is discussed - and why the other is not. There are two NVTAs in the Napa communities. One is a transportation sales tax authority and the second is a joint powers agency that provides transportation planning, transportation programing, transit operations and the occasional transportation project for the Napa communities. They are independent entities with separate boards. It appears the section is concerned with the joint powers agency, not the transportation sales tax authority.	The comment is noted. There is in fact only one NVTA in the Napa Community, which is a joint powers authority as discussed in the comment. The Napa Valley Transportation Authority-Tax Agency (NVTA-TA) is an independent oversight committee included within the larger NVTA, and its sole purpose is that of the transportation sales tax authority. The NVTA-TA Board of Directors is identical to the NVTA Board with the exception of the one non-voting representative of the Paratransit Coordinating Council. This information was provided by the NVTA. Section 3.13 concerns the NVTA as one singular entity and all associated responsibilities.
B6-92	In addition, the Napa communities do not have a CMA, having opted out of the requirement two decades ago.	NVTA is a joint powers authority which acts like the CMA for Napa County, and refers to itself as such on its website. As stated in the comment, the NVTA is not a CMA by legislation which requires the completion of a Congestion Management Plan (CMP). For accuracy, references to the NVTA as a CMA have been removed in the Local Regulations Section on page 3.13-22. The first paragraph under the Napa Valley Transportation Authority (NVTA) heading has been updated to the following language:

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		"The Napa Valley Transportation Authority (NVTA), formerly Napa County Transportation and Planning Agency (NCTPA), serves as the Congestion Management Agency (CMA) and the transportation planning agency for the incorporated and unincorporated areas of Napa County. Because the County does not have an adopted congestion management plan (CMP), NVTA works with the Metropolitan Transportation Commission (MTC) to prepare the Napa County portion of the RTP.
B6-93	3.13-24, Significance Criteria, Criterion 5 & 6. Please consider moving the "or" on 6 to 5 and ending 6 with a period.	The comment is noted. The Significance Criteria section has been updated as follows: "Criterion 5: Result in inadequate emergency access; or Criterion 6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities."
B6-94	5-2, Population, first paragraph, third sentence. Please consider rewording. The stated historical growth rate of 0.16 percent per year is much smaller than the 0.60 percent rate projected. Although the 0.44 difference does not sound like much, it is an increase of 275 percent over the historical rate. That large of a change probably does not qualify as "slightly". What does ABAG predict for St. Helena, not Napa county?	The section has been revised as follows: "The Planning Area will accommodate a population of approximately 7,300 people at buildout, as seen in Table 5.1-1. This represents a total increase of about 12 percent over the 2018 estimated existing population, an average of about 0.6 percent annually. The projected growth rate is ~~slightly~~ higher than St. Helena's historic growth rate of 0.16 percent annually from 2000 to 2018, but is consistent with the projections by the Association of Bay Area Governments (ABAG), which predicts a population growth rate of about 0.67 percent per year for Napa County. ABAG predicts a population growth of about 8 percent over the 2010 estimated existing population for St. Helena, an average of about 0.28 percent annually. The Proposed Plan would increase the growth rate of St. Helena beyond historic averages, but would retain a growth rate consistent with projections for the entirety of Napa County."
B6-95	5-3, Table 5.1-1. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, centering St. Helena and Planning Area over their relative sections of the chart, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Housing Units and Population under St. Helena and under Planning Area (should these be ones?) and deleting the superscript three for Planning Area.	Table 5.1-1 has been revised to add a vertical line between the figures for St. Helena and those for the planning area and center St. Helena and Planning Area over their relative sections of the chart. The St. Helena section now includes only superscripts for Note 1. The Planning Area section now includes only superscripts for Note 1 and 2. Use of rounded figures provides a generalized comparison between the two areas and is consistent with multiple tables included in the DEIR.
B6-96	5.3, Public Facilities and Services, second to the last sentence. Please consider rewording as it implies the city owns a solid waste facility.	The comment is noted. The sentence does not imply that the city owns a solid waste facility, rather it is the facility used by the city. The sentence has been revised to clarify this point as follows: "Additionally, Clover Landfill,

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		the ~~St. Helena's~~ solid waste landfill used by residents and businesses in the city of St. Helena and unincorporated Napa County, has significant remaining capacity."
B6-97	5.5, Table 5.1-2. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Jobs (which presently means it applies to all figures on the Jobs row) and explaining how one reasonably presents a ratio with two significant figures when the figures from which the ratio is defined are rounded to the nearest one hundred.	The comment requests changes to Table 5.1-2 and requests clarification on the jobs-to-housing ratio. Table 5.1-2 has been revised to add lines and adjust the superscript. As stated in response to comment A3-B-10, the buildout projections are approximations intended to provide a point of comparison, and are rounded to acknowledge the uncertainty inherent in the projection of future development and taking a more conservative approach to the environmental analysis by erring on the side of overestimation rather than underestimation. The jobs-to-housing ratio is similarly intended as a point of comparison, and shows the decimal points to allow readers to discern where the ratios lie relative to one another.
B6-98	5.5, Cumulative Analysis, second sentence. Please add a comma after "air quality".	The sentence has been revised as follows: "By their nature, the air quality, transportation, noise, energy, greenhouse gas emissions, and climate change analyses presented in Chapter 3 represent a cumulative analysis, because the effects specific to the Proposed Plan cannot reasonably be differentiated from the broader effects of regional growth and development."
B6-99	5.7, Cumulative Effect on Cultural, Historic and Tribal Resources, last sentence. Please replace "I" with "is".	The sentence has been revised as follows: "Given these protections in place for cultural, historic, and tribal resources, the Proposed Plan's impact on this potentially significant cumulative impact ~~I~~ is not cumulatively considerable."
B6-100	5.9, Wastewater Treatment and Distribution, first sentence. Please consider deleting "other" as it implies that the St. Helena treatment facility is regional in nature.	The sentence has been revised as follows: "The City of St. Helena handles its own wastewater treatment and distribution through its Wastewaster Treatment and Reclamation Plant, which is isolated from ~~other~~ regional wastewater treatment plants."
B7-A-1	Subject: FYI - bad reference in appendix to draft EIR Noah,	The comment is the subject and salutation of the letter. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B7-A-2	FYI, on pages A-4 and A-5 of the appendix to the draft EIR there are two references to Chalk Lane. The correct name is Chaix Lane.	The comment is noted. Page A-4 of Appendix A is part of the Notice of Preparation for the City of St. Helena General Plan Update DEIR and has already been published. It is best practice to retain the letter in its original form; therefore, no change is necessary. All references to Chalk Lane in the DEIR have been revised to read "Chaix Lane."

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B7-A-3	Mark Smithers I Sen ior Vice President, Finance Trinchero Family Estates	The comment is the signature for the letter. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B7-B-1	From: Mark Smithers <msmtthers@tfewines .com<mailto:msmithers@tfewines.com>> Date: December 30, 2018 at 9:30:33 AM CST To: •NHoush@city.ofsthelena.org<mailto:NHoush@roofsthelena.org>" <NHoush@cityofsthelena.org<mai lto:NHoush@city.ofsthelena.org>>	The comment is the address block for the letter. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B7-B-2	Subject: A-14 of the appendix reads "sonoma county"	The comment is noted. Page A-4 of Appendix A is part of the Notice of Preparation for the City of St. Helena General Plan Update DEIR and has already been published. It is best practice to retain the letter in its original form; therefore, no change is necessary.
B7-B-3	Mark Smithers I Senior Vice President, Finance Trinchero Family Estates	The comment is the signature for the letter. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B7-C-1	Noah, We hope your day is going well. We have the following comments with regards to the draft EIR and General Plan.	The comment is the salutation of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.
B7-C-2	Guiding Principles and Objectives First and foremost, the "guiding principles" of the 2040 General Plan beginning on page 1-14 and summarized in the draft EIR as "objectives," do not specifically speak to neighborhood livability. Protecting and improving the livability of our neighborhoods should be a top priority and be listed as an important guiding principle and objective of our 2040 General Plan. Housing and housing impacts Tables ES-1 and ES-2 of the draft EIR provide build out information. ES-1 provides that 300 additional housing units with an increased population of 700 at 2040 build out. ES-2 suggests 900 additional jobs at build out. This draft GP doesn't adequately balance anticipated future housing and job growth with infrastructure changes. Additional housing units and jobs will only exasperate the (current) sub-par housing and traffic situation. It is understood that the housing element is currently in the process of update.	The comment addresses the Draft General Plan Update and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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	The GP needs to address the housing issue, and its impacts, head on and not leave it for later. Draft EIR areas of controversy note that traffic impacts from future development will exasperate the existing traffic issues. As such, circulation, local traffic, and neighborhood traffic impacts need strengthened directives within the appropriate GP elements. Planned improvements in the GP need to ensure successful results of better circulation: increased biking, walking, safe routes to school, and additional outside opportunities. Circulation The draft GP Circulation Section provides for "potential future road extensions." The road extensions (better described as connections as they are connecting the town together) are described as "Study Alternatives." These road connections (including a fully implemented Oak Street connection) have been reviewed and discussed since 1993. In-town traffic and circulation was bad then and has become nearly unbearable. The connections do not need to be "studied" any longer. The GP language should be stronger and note an immediate need to implement our connectivity. Additionally, the noted "special studies" should only be limited to the bike and walking infrastructure associated with the road extensions. Any infrastructure improvements should be subject to standard review with no special limitation or additional requirements. Alternatives to the Proposed Plan in the draft EIR includes transportation network enhancement alternatives, including a full Oak street connection from Grayson to Mitchell. This alternative is absolutely correct, as per the 1993 General Plan. The circulation element needs to be updated and include this full street connection. St Helena needs to improve in-town circulation for it citizens coming in to and out of town. The Oak Street connection from Grayson to Mitchell is not about relieving traffic from SR-29, it is about in-town circulation and, most importantly, reducing local Vehicle Miles Traveled (VMT). If we have any hope of improving our local air quality and addressing our climate impacts we must reduce VMTs within our city limits. Improved circulation and adopting all the street connections included in the previous General Plan, including the Oak Street extension, will help us in these efforts.	

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	Traffic safety and noise in residential neighborhoods Various elements of the Plan should specifically provide how the City plans to control and mitigate the impacts of traffic noise and safety on neighborhoods. Residents have the right to the peaceful enjoyment of their properties. Plan elements need to ensure that neighborhoods and homes are not degraded by unsafe traffic, noise, air quality, development, and inappropriate zoning or uses contiguous to the streets we live on and where our kids play or go to school. Traffic issues within certain neighborhoods were acknowledged in the 1993 plan and subsequent analysis in 2006 and 2009. The GP needs to be more specific in directing how our in-town and through-town traffic issues will be mitigated to ensure safety and health. Getting folks out of their cars is a high priority of the Draft GP. We cannot accomplish this priority with high traffic streets and speeding cars. The GP needs to adopt stronger more specific guidance on neighborhood traffic issues. The draft GP Circulation Section is practically silent as to one of the most pressing problems in St Helena now, and likely to grow in the future, and that is, traffic volumes and speeds in residential areas. The Circulation Section states "continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas". The GP does not, but should, address what types of measures could be utilized for traffic calming, what the policies are, and how those policies will be implemented to improve neighborhoods and pedestrian and bicyclist health and safety. The Nov, 2009 Fehr and Peers Transportation Report (included in the Appendices) identified excessive speeding and suggested "traffic calming measures which involve changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut through volumes, in the interest of street safety, livability and other public purposes". The GP should identify specific types of traffic calming strategies for the most impacted cut-though residential neighborhoods; since this issue is predicted to only get worse in the future, metrics which would measure successful implementation could be useful. Air Quality Issues/Measurements The draft EIR addresses Air Quality and Energy, Greenhouse Gases, and Climate Change. As the draft EIR notes, both our current status and GP build	

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	out violate BAAQMD standards. This is obviously not acceptable. The 2040 GP as drafted is a health risk to current and future residents. The GP needs to address and mitigate these health risks before the Plan is adopted. Potential solutions that should be noted in the GP include limiting pesticide and herbicide use, reducing cultivation to significantly reduce airborne particulate matter, requiring alternative energy for all new construction or significant building improvements and remodeling, requiring all residences, businesses, government facilities to adopt 100% MCE clean green, reducing cut through traffic and adding new EV charging stations. In the meantime, an air quality monitoring station should be initiated at the SH Primary School. This school is for 4-7 year olds and is adjacent to one of the (now) busiest residential streets in St Helena. This street has become the cut through street for residents and workforce alike, and the children at the school are outside on their playground adjacent to S Crane several times a day. The City needs to mitigate the impacts to these small children. SHUSD Mitigation Measures Identified in Negative Declaration The GP should include a plan to require the SHUSD to implement the required traffic mitigation measures associated with the Primary School construction and the Negative Declaration Report the SHUSD issued at that time. The City and SHUSD have allowed the required mitigation measure for the additional school traffic to go unmet. Implementation of the required mitigation measure will help the City achieve its 2040 GP goals of in the areas of Air Quality, Climate Change, Traffic, Safety, Health, and Livability	
B7-C-3	Please confirm receipt of this email. Thank you in advance for your efforts on this very important and long over due project. Mark and Pam Smithers This email is sent from an employer address and only represents the thoughts of the sender. Mark Smithers | Senior Vice President, Finance Trinchero Family Estates	The comment is the closing of the letter and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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B8-1	Please consider these written public comments concerning both the General Plan Update and the corresponding Draft Environmental Impact Report. My comments are limited to the statutory requirement that a General Plan Update (GPU) include a map, diagram or other method of showing the inundation areas in the event of the failure of the St Helena levee and/or flood wall. I have made comments on this subject numerous times during previous comment periods related to General Plan Updates and their corresponding Draft Environmental Impact Reports (DEIRs). The first time this issue was raised was during the public comment period ending in July 2016. The most recent oral comments made prior to the release of the 2040 GPU were at the Joint Meeting of the Planning Commission and the City Council to review the General Plan on August 14, 2018.	The City acknowledges commenter efforts to provide comments and has provided responses to specific comments below in B8-2 to B8-5.
B8-2	When the 2040 GPU was released on October 23, 2018, I was out of the country. Upon my return to St Helena I notified Noah Housh by email on 11-20-18 that the updated General Plan Safety Element still did not include the areas of inundation in the event of a levee and/or flood wall failure. The statutory requirement for this appears at Government Code §65302(g)(2)(A)(viii). This requirement is also confirmed in the recently updated version of the Governor's Office of Planning and Research's General Plan Guidelines at page 143. At the Planning Commission meeting on December 4, 2018, which was agendized for the purpose of taking public comment on the DEIR, I again made oral public comments on the lack of the required levee and flood wall failure areas of inundation. There was some discussion as to whether or not the levee protection map would suffice to satisfy this requirement. I pointed out that the map of the levee protection zones are separately required under Government Code §65302(g)(2)(A)(vii). One of the reasons there is a separate requirement for areas of inundation in the event of a levee or flood wall failure is because the force of the water and the damage it can cause are significantly greater in the even of a levee or flood wall failure than what would happen during a flooding event. The inundation map is not just the converse of the levee protection areas and wouldn't take into account what would happen in the event of a flood wall failure, which is also a requirement of Government Code §65302(g)(2)(A)(viii).	This comment pertains to the Draft General Plan and does not raise any significant environmental issues or address the adequacy of the EIR. As such, no further response is required pursuant to CEQA; however, as the comment raises a claim regarding legal requirements for the General Plan, this response is provided for the purpose of clarification. Government Code §65302(g)(2)(A)(viii) requires that General Plans identify information regarding flood hazards, including but not limited to "identify areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls." This requirement is also cited on page 143 of the General Plan Guidelines prepared by the Governor's Office of Planning and Research (OPR). The two terms "project" and "non-project" refer directly to State Plan of Flood Control (SPFC) levees (project levees) and levees that are under the jurisdiction of the state of California that are non-SPFC levees (nonproject); which are both under the jurisdiction of the Central Valley Flood Protection Board (CVFPB). The California Department of Water Resources' website (http://gis.bam.water.ca.gov/bam/) clearly shows the CVFPB's designated floodways, regulated streams, all project and nonproject levees and that none of these features exist within the City of St. Helena. Therefore, because the levee and flood wall adjacent to the City of St. Helena is not a "project" or "nonproject" levee/floodwall, the requirement of Government Code §65302(g)(2)(A)(viii) is not

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		applicable. Government Code §65302(g)(2)(A) also requires that General Plan identify other information regarding flood hazards, such as FEMA and Floodplain maps, and areas subject to inundation in the event of dam failure; however, there is no requirement that all of this information be presented on separate maps. The FEMA Flood Insurance Rate Map (FIRM), adequately meets or exceed items Government Code §65302(g)(2)(A)(ii), (vi), (vii), and (viii) under the code. The FEMA FIRM data, depicted on Figure 9.1 of the Draft General Plan and Figure 3.9-3 in the Draft EIR, shows the 100- and 500-year floodplains and areas with reduced flood risk due to levees. Due to the assumptions and behavior in a flood event for the river and breach scenarios required to map a failure (e.g., unsteady river hydrograph vs. steady-state peak flow assumed for the FIS, large levee/floodwall breach dimensions, short time to failure), the levee would not require a dynamic assessment as the comment suggests and the affected area would be adequately represented by the areas protected by the levee. Logically, with other conditions remaining the same, a dynamic simulation of a levee or floodwall failure could only result in a smaller area affected than what is shown on the FIRM as "Zone X - Area with reduced flood risk due to levee," which is based on steady-state modeling assuming no levee exists. This area is also based on a more conservative 500-year flood than the levee and floodwall design. Therefore, even though this modeling effort is not required for this levee, maps already included in the Draft General Plan would fulfill the basic requirement of the specific safety elements referenced by this comment. Nevertheless, a separate map showing the area potentially affected by a levee or floodwall failure is provided for informational purposes in this Final EIR.

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Data Sources: City of St. Helena, 2018; Napa County, 2018; FEMA, 2018; Dyett & Bhatia, 2018; Mead & Hunt, 2019

- Floodwall
- Levee
- Railroads
- Stream
- Water Features
- Urban Limit Line
- City of St. Helena
- Approximate Levee Failure Inundation Area

This figure is for informational purposes only and is based on a conservative delineation of the inundation area for a 500-year flood event and levee failure. The approximate levee failure inundation area represents an event above and beyond the standard levels of protection for levee design in California and shall in no way replace, supersede or modify the approved Federal Emergency Management Agency's Flood Insurance Rate Map for the City of St. Helena.

City of St. Helena

Mead & Hunt

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B8-3	The legislature would not have specifically required areas of inundation in the event of a levee and/or flood wall failure if there wasn't a need to have that information. But even if it was not such a requirement, the City should be interested in including that information for both safety and financial reasons. Not only does the City need the information, but every resident impacted by a potential levee or flood wall failure deserves to know what the potential danger is for them. Especially important is the fact that many of those who would be imperiled by a levee or a flood wall failure are some of the most vulnerable in our community. Vineyard Valley, Hunt's Grove, Meadow Creek Circle and a lot of other areas of the eastern part of the City would be significantly impacted and they all deserve to know what the possibilities are. During some of the rain storms in recent years, one of the City's main across-city access points between Highway 29 and the Silverado Trail was destroyed. The Pratt Avenue bridge has remained closed since that time. If there was a flood wall and/or levee failure it likely would cause severe damage to another important access to the Silverado Trail. The Pope Street Bridge is immediately adjacent to the flood wall and is located very close to the levee. A failure of either the levee or the flood wall could jeopardize the viability of and cause severe damage to the Pope Street Bridge, which would be a significant safety problem for the City and all of its residents and visitors. To further complicate this situation our levee and flood wall are both located in an area of very high and high liquefaction. That information already appears is in the 2040 GPU. Liquefaction is a major and well-known cause of levee failures.	Please see response to comment B8-2. The City has met all requirements for identification of areas that are subject to a higher risk of flooding within St. Helena and has included that information in the Draft General Plan and Draft EIR, providing transparency for potential risks faced by City residents. Additionally, as noted on page 4-20, pages 9-4 through 9-6, and page 9-23 of the Draft General Plan, the Comprehensive Flood Control and Environmental Restoration Project and Napa River Flood Model Study improved flood protection in areas of the City subject to periodic historical flooding and included analysis and topography surrounding and including the Pope Street Bridge. A failure of the levee or floodwall, which are located upstream of the Pope Street Bridge, would logically result in a subsequent decrease in the Napa River flow at the Pope Street Bridge, and therefore could not be construed to contribute to a failure of the bridge. Further, the City notes that Policy PS5.6 in the Draft General Plan addresses risks associated with levee and flood wall failure, requiring the City to coordinate with the Napa County Flood Control and Water Conservation District and other responsible agencies to maintain protocols and funding for the regular inspection and maintenance of flood control facilities in the city, including levees, flood walls, floodplain terracing, stormwater detention ponds, and pumping facilities. The Operations and Maintenance Manual for the St. Helena Comprehensive Flood Protection Project stipulates procedures for operation; maintenance and inspection; emergency operations; surveillance; and personnel training that minimize the risk of levee/floodwall failure.
B8-4	Not only should the General Plan Update include the areas of inundation resulting from a levee and/or flood wall failure, but the Draft Environmental Report should include the potential safety and environmental damage, which could be created when considering the intersection of the levee and flood wall failure inundation map, the liquefaction map (already in the 2040 GPU) and the earthquake map (also included in the 2040 GPU.) For example, this issue should be discussed in the Circulation Element when considering the potential impact of the loss or restriction of the use of the Pope Street Bridge if there is a levee or flood wall failure. There are other areas of the Draft Environmental	CEQA Section 15126.2 requires that an EIR "evaluate any potentially significant impacts of locating development in areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas) as identified in authoritative hazard maps, risk assessments or in land use plans addressing such hazards areas." As noted by the commenter, the Draft EIR identifies liquefaction hazard areas on Figure 3.7-3 based on data from the Association of Bay Area Governments (ABAG) and discusses related impacts on pages 3.7-24 to 3.7-25 and 3.7-26 to 3.7-27. Also as noted by the commenter, the Draft EIR identifies active faults on Figure 3.7-2, based on data from the US Geological Survey and the California Geological Survey,

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	Impact Report and General Plan Update where these issues should also be discussed.	and discusses fault rupture-related impacts on 3.7-23 to 3.7-24 and hazards related to seismic ground-shaking on page 3.7-24. Additionally, Figure 3.9-3 in the Draft EIR shows flood hazard areas, including areas at risk in the event of levee failure, based on topography, flood flow, and other factors as modeled by FEMA, while Figure 3.9-4 shows dam inundation areas. Related impacts are discussed on pages 3.9-41 and 3.9-42 of the Draft EIR. As such, the Draft EIR evaluated potentially significant impacts related to these hazardous conditions on the basis of authoritative hazard maps and risk assessments as required under CEQA. However, as no authoritative hazard maps exist for the composite high risk, low probability scenario described by the commenter, evaluation of the compound risk resulting from levee/floodwall failure, liquefaction, and earthquake event together would be speculative and is therefore not required in the Draft EIR. The probability of such an event is very low, has not been calculated and would be well above the current state and federal requirements for levee design, flood risk reduction, and annual exceedence design requirements. The City notes that impacts related to emergency access are discussed on pages 3.13-51 through 3.13-52 of the Draft EIR and that impacts related to conflicts with adopted emergency responses plans or emergency evacuation plans are discussed on pages 3.8-29 through 3.8-30 of the Draft EIR.
B8-5	Since the land immediately behind the levee is designated medium density residential, the areas of inundation in the Draft Environmental Impact Report must also consider the safety and environmental impacts of any housing being built and asphalt laid behind the levee. It is logical to conclude there would be significantly more damage to the environment if the flood plain behind the levee is built up with housing and asphalt, than the damage that what would happen during a levee failure on the current unobstructed flood plain behind the levee. Since this would not be a hypothetical situation since there is a current project planned for that approximate 17 acre site, it must be included in the proposed General Plan Update and Draft Environmental Impact Report.	The DEIR recommends Measure HYDRO-1, which will require that development or redevelopment within the floodplain obtain a Letter of Map Revision (LOMR) from FEMA and must demonstrate the property will be above the FEMA base flood elevation and will not subsequently raise the base flood elevation. HYDRO-1 would mitigate and reduce associated impacts to less than significant. Impacts related to development in flood risk areas under the Draft General Proposed Plan, including dam and levee inundation areas, are discussed on pages 3.9-36 through 3.9-42 of the Draft EIR. Figure 3.9-5 shows Housing Element Opportunity Sites and proposed change areas in relation to flood risk areas.
B8-6	Thank you for your consideration. Vickie Bradshaw January 2, 2019	The comment is the closing and is noted. It does not raise any significant environmental issues or address the adequacy of the EIR; thus, no further response is necessary.

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B9-1	To: St. Helena City Council via City Clerk January 3, 2019 RE: General Plan 2040 - public comment deadline and notification to the public Dear Mayor Ellsworth and City Council, A number of us local residents have been hearing spotty information about a deadline today for us to provide public comments to the Environmental Report for the 2040 General Plan. We are notifying you that many people we know in town cannot find the deadline posted anywhere on the city website. And, we cannot even find anything about submitting comments (examples: how to do it, who to send it to, is there a format to follow, when it's due…). So, is this true? Some of us may not be computer experts, but quite a few of us searched the city website and see NO notice asking for public comments or a deadline. HOW CAN THE PUBLIC KNOW WE CAN GIVE COMMENTS AND HAVE A DEADLINE WHEN THE CITY AND GP WEBSITE DOES NOT EVEN POST IT? The General Plan will be around for a very long time and will define our city and our childrens city and our grandcildrens city for years and years. You can look on the website for yourselves. We saw nothing. (See below where we printed the image of the Main city website AND the GP website page as it is TODAY). Then, since you are a NEW COUNCIL please start off on the right foot and work hard to make sure you are being transparent and really wanting public input by at least putting it somewhere noticeable on the website. PLEASE PUT THIS LETTER INTO THE DRAFT EIR AS A COMMENT BECAUSE WE HAVE NOT HAD THE CHANCE TO SEND IN ANYTHING BECAUSE WE DIDN'T KNOW ABOUT IT. We want to make sure it goes on the record that we feel we were not notified. Thank you very much Council. Jim and Pat Reynolds, and friends, and neighbors, in St. Helena	The comment regards noticing of the public review period for the Draft EIR, stating that the deadline for submission of public comments was not clearly advertised, and that the City's website lacked information about the deadline. The General Plan Update process has been assigned its own web page on the City's website. This page has been regularly updated with information on the update process (link below). Any individuals whom expressed concerns over accessing the General Plan Update inforamtion to City staff was responded to as a top priority. The City held approximately 20 publically noticed meetings discussing te General Plan Update and EIR process from 2016 through the finalization of the EIR. Each of these is available for public review and access on the City's website (link below). http://www.cityofsthelena.org/planning/page/2040-general-plan-update https://sthelena.civicweb.net/Portal/MeetingTypeList.aspx
B9-2	Attachments	The attachments were provided to support comment B9-1 and are noted.

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B10-1	California Government Code Section 65302(g)(1)(A)(VIII) requires cities with a housing element update after 2009 (St. Helena's Housing Element was updated in 2015) with floodwalls and/or levees to show "areas subject to inundation in the event of the failure of the project or non-project levee or floodwall" in the safety element of the general plan, and the Office of Planning and Research recently issued updated general plan guidelines reconfirming the statutory requirement for inclusion of a levee/floodwall failure map. The Proposed Plan does not currently include a levee/floodwall inundation map, but the map is important to have for safety and financial reasons. Vineyard Valley, Hunt's Grove, Meadowcreek Circle, and other areas in East St. Helena would be directly affected by a levee or floodwall failure and residents have a right to know what potential safety problems they may have. The levee/floodwall is located in areas mapped as having high and very high liquefaction hazard, and liquefaction is a well-known cause of levee and floodwall failure. In the July 25, 2016 public comments to the earlier Draft EIR for the General Plan Update at that time, there was a USGS satellite map of Napa and St. Helena that showed significant ground moving in the area of the levee at the time of the 2014 Napa earthquake, suggesting that had there been rain, there could have been liquefaction in that area with the potential to damage the levee/floodwall. The City did not provide a response to the comment at that time.	Please see responses to comments B8-1 through B8-6. Neither Government Code §65302(g)(2)(A)(viii) nor the OPR Guidelines require that areas in St. Helena subject to flooding in the event of levee failure be identified or mapped. Nevertheless, as described response to comment B8-2 through B8-6, the City has identified, characterized, and addressed risk associated with levee and/or flood wall failure the Draft General Plan with textual descriptions and maps. Further, in 2004, the City prepared an EIR for the Comprehensive Flood Control and Environmental Restoration Project (State Clearinghouse #2002012078) that evaluated the direct and reasonably foreseeable indirect impacts from the Project in a study area that extends from Deer Park Road to Zinfandel Lane and includes the city and its residents, surrounding agriculture, and local businesses. The EIR analyzed a range of alternatives and considered the cumulative impacts of implementing the Comprehensive Flood Control and Environmental Restoration Project. Overall, the EIR determined that the Project would provide protection from larger flood events, including 100-year and 500-year flood events, and that it would have a beneficial impact with respect to flood protection. The EIR did not find that the Project would result in significant impacts related to flooding, levee/flood wall failure, liquefaction or earthquake hazards. The City Council certified the Comprehensive Flood Control and Environmental Restoration Project in 2004 and adopted an addendum in 2006, which confirmed that implementation of the revised project would not result in new or substantially more adverse environmental impacts. Further, the City notes that according to the USGS liquefaction is not cause by rain but rather results when earthquake waves cause water pressures to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength and behave like a liquid.
B10-2	A levee/floodwall failure inundation map is important for financial reasons, as many residents gave up flood insurance when the levee was built, and they have the right to know the potential financial damage they might experience in the event of a levee failure. St. Helena took $12 million in loans and grants from the State to build the Flood Control Project. As a result, the California Legislature passed and the Governor signed AB 1898, codified in California Water Code Section 12748.3, which states that, "…The State may provide funds in accordance with section 12585.7 to the City	This comment pertains to the Draft General Plan Update and does not raise any significant environmental issues or address the adequacy of the EIR. As such, no further response is required pursuant to CEQA; however, as the comment raises a claim regarding the potential liability of the City under California law, this response is provided for the purpose of clarification. Under the statute cited in the comment, the state has required the City to indemnify it from liability based on the state's agreement to loan money for the flood project. However, although this indemnity requirement lessens the state's exposure, it does not expand or even address the City's liability.

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	of St. Helena or to local agencies in the County of Napa for the project for flood control on the Napa River in the County of Napa. (c) A county or local agency may receive the funds only if it enters into an agreement with the Department [of Water Resources] pursuant to which the city or the local agency agrees to indemnify and hold and save harmless the State, its officers, agents, and employees, for any and all liability for damages that may result from the project. (d) For the purposes of this section, liability for damages includes, but is not limited to liability for damages relating to the construction or operation of the project or the failure of the project to operate as intended." The City has indemnified the State in the event of a levee or floodwall failure so the financial responsibility would be entirely the City's, and residents have a right to know the potential damages there could be in the event of a levee/floodwall failure and the resulting potential financial liability of the City.	Under the applicable case law, a rule of reasonableness applies, under which the City is liable "if its conduct poses an unreasonable risk of harm to a potential plaintiff, the unreasonable conduct is a substantial cause of the damage to the plaintiff's property, and the plaintiff has taken reasonable measures to protect his property." In sum, the City is not strictly liable for damages caused by the flood control project and the typical public agency immunities would likely also be considered by a court assessing any alleged City liability associated with a levee failure/flooding event together with the factors relevant under this applicable rule of reasonableness standard, which include: 1) The overall public purpose being served by the improvement project; (2) the degree to which the plaintiff's loss is offset by reciprocal benefits; (3) the availability to the public entity of feasible alternatives with lower risks; (4) the severity of the plaintiff's damage in relation to risk-bearing capabilities; (5) the extent to which damage of the kind the plaintiff sustained is generally considered as a normal risk of land ownership; and (6) the degree to which similar damage is distributed at large over other beneficiaries of the project or is peculiar only to the plaintiff.
B10-3	Inclusion of the required inundation map in the Proposed Plan should also involve a change to the EIR to discuss safety problems and potential environmental damage considering the intersection of the levee/floodwall failure inundation map, the liquefaction map, and the earthquake map. The EIR should also include comments as to the safety and environmental impacts in the event of a levee failure if housing and asphalt is built behind the levee, as the area would be designated Medium Density Residential, and the currently unobstructed floodplain would be negatively impacted. When the map is included, it should be considered a substantive change and trigger a new public comment period as it would be unfair to insert a map after the close of the comment period and not allow the public to comment on the source and adequacy of the map and EIR analysis.	Please see responses to comments B8-1 through B8-6 and B10-1 through B10-4. Neither Government Code §65302(g)(2)(A)(viii) nor the OPR Guidelines require that areas in St. Helena subject to flooding in the event of levee failure be mapped. Additionally, as no authoritative hazard maps exist for the composite high risk, low probability scenario described by the commenter, evaluation of the compound risk resulting from levee/floodwall failure, liquefaction, and earthquake event together would be speculative and is therefore not required in the Draft EIR. Nevertheless, in St. Helena levee or flood wall failure is a compound issue tied to flooding and as such flood risk areas shown on Figure 3.9-3 and 3.9-5 in the Draft EIR represent areas at risk in the event of levee or flood wall failure, based on topography, flood flow, and other factors as modeled by FEMA. Therefore, there is no need to incorporate a new levee failure map or recirculate the Draft EIR. Further, as noted on pages 3.9-13 through 3.9-23 and 3.9-32 through 3.9-36

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		of the Draft EIR, new development under the Proposed Plan would be subject to existing federal, State, and local regulations regarding stormwater management, including the provisions of the MS4 Permit, the Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual adopted by the City of St. Helena, and the City of St. Helena Municipal Code. Compliance with these programs and regulations and implementation of associated BMPs as well as numerous Proposed Plan policies cited in the Draft EIR would ensure that development under the Proposed Plan would not result in a substantial adverse change in impervious surface area.
B10-4	The Government Code section also requires that cities show levee protection areas, which is different from areas subject to inundation. There is also a requirement that if a dam is present, there should be a dam failure inundation map, which has been included in this EIR. If there are levees with areas subject to inundation, a separate chart or description is required because if a levee fails, the water can be much more forceful and can create more damage than just normal flooding.	Please see responses to comments B8-1 through B8-6. Neither Government Code §65302(g)(2)(A)(viii) nor the OPR Guidelines require that areas in St. Helena subject to flooding in the event of levee failure be identified or mapped. Nevertheless, in St. Helena levee or flood wall failure is a compound issue tied to flooding and as such flood risk areas shown on Figure 3.9-3 and 3.9-5 in the Draft EIR represent areas at risk in the event of levee or flood wall failure, based on topography, flood flow, and other factors as modeled by FEMA.
B10-5	Regarding Mitigation Measure MM-AQ-2, is there a State law or Air District requirement that the submittal be to the Bay Area Air Quality Management District (BAAQMD)? He was concerned that everyone building a new home would have to make the submittal, and if so, he would prefer that the submittal be made locally to the City rather than involving BAAQMD and creating additional requirements and expenses for an applicant.	The comment is noted. Construction within the Planning Area is subject to VOC content limits mandated by the California Green Building Code, adopted by the St. Helena Municipal Code, and BAAQMD Regulation 8, Rule 3. BAAQMD Regulation 8, Rule 3 requires manufacturers of architectural coatings to clearly display the VOC content on each container of any coating subject to this rule. It is not a requirement of the State or Air District to submit evidence of the use of low-VOC coatings to the local Air District, only to comply with content limits. BAAQMD Regulation 8, Rule 4 requires that any person using coatings or solvents subject to that rule maintain an ongoing list of all coatings in use, and the usage quantity, that provides all data necessary to evaluate compliance. These records must be retained and made available for inspection, but initial submittal to BAAQMD is not required. It may be useful for a project applicant to confirm with BAAQMD that the applicant's proposed coatings are low-VOC coatings with a VOC content of 10 g/L or less. However, this additional confirmation would not be required given existing VOC content labeling requirements. The modification requested is a clarification of the content of the Draft EIR and does not affect the findings or conclusions of the

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		environmental analysis. The text of the mitigation measure if hereby modified as follows: "AQ-2: Require that applicants proposing development of projects within the City of St. Helena require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the requirement for the use of low-VOC coatings to ~~BAAQMD~~ the City of St. Helena prior to the start of construction."
B10-6	Regarding Mitigation Measure MM-AQ-3, he sought to confirm that the number of these point sources would be very low.	Point sources of criteria air pollutants include external combustion boilers, internal combustion engines, industrial processes, petroleum and solvent evaporation, waste disposal, and food and agricultural processes. Creation of new point sources would occur in land uses designated as industrial. Implementation of the General Plan Update would not increase land designated as Industrial, currently limited to two percent of the city acreage under existing conditions. Other examples of point sources include gas stations and dry cleaners. The Planning Area contains four gas stations under existing conditions, and the number of either source is unlikely to substantially increase. Therefore, the amount of development affected by MM-AQ-3 would be low.
B10-7	Regarding Mitigation Measure MM-AQ-6, is this mitigation measure statutory? Under this measure, every building project in the city would have to do a health risk assessment because everyone is within 1,000 of a residence, school, or other sensitive receptors. This could cost lots of money if all projects have to go through this.	The implementation of mitigation measures recommended in the Draft EIR will be required if the St. Helena City Council certifies the General Plan EIR and adopts the mitigation monitoring and reporting program. MM-AQ-6 would apply only to new development proposed for construction and operation in the proximity of sensitive receptors and would not apply retroactively to existing development. Human health risk assessments are a standard requirement under CEQA throughout the state and are typically completed by environmental consultants for a relatively small fee in comparision to the overall cost of environmental review and permitting. Additionally, BAAQMD recommends that any proposed project that includes the siting of a new source or receptor assess associated impacts within 1,000 feet, taking into account both individual and nearby cumulative sources. As such, implementing this mitigation measure would not impose undue cost on developers in St. Helena and it would help to identify and mitigate potential health risks to sensitve populations such as children and seniors, including increased risk of cancer.

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		For clarification, Mitigation Measures AQ-5 and AQ-6 have been revised as follows: "AQ-5: To protect sensitive receptors require discretionary projects within 500 feet of Highway 29, Silverado Trail or the Rail Corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels. AQ-6: All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by BAAQMD, shall prepare a site-specific screening level construction health risk assessment (HRA) taking into account both project-level and cumulative health risks (including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable."
B10-8	Regarding MM-GHG-1, why are we writing a Climate Action Plan that might not reach the target that the State has set, which it has not yet set? How would this mitigate the impact, and how would you assess the success of the mitigation since the State has not set targets, goals, or a way of reaching those targets and goals? Ninety percent of control measures would be at the State or regional level anyway, and the City would have a hard time meeting the targets based on what's under its control.	The comment is noted. As discussed on pages 3.6-10, 3.6-12, and 3.6-44 of the DEIR, Executive Order B-30-15 and Executive Order S-03-05 establish greenhouse gas emissions targets for 2030 and 2050, respectively. While these emissions targets are State-mandated, the State did not provide specific roadmaps for jurisdictions to achieve these levels. The 2017 California Air Resources Board (CARB) Scoping Plan provides recommended per capita targets to achieve the goal established by EO B-30-15, which would not be met under implementation of the Proposed Plan or the Business As Usual scenario as described under Impact 3.6-1. The analysis states that further State and federal actions are necessary to ensure that targets are met, but it is the individual responsibility of each jurisdiction of the State of California to implement supplementary solutions to reach this target. Creation of a Climate Action Plan would be in line with the actions of cities across the State of California to reduce GHG emissions using feasible, comprehensive, and thoughtful strategies. Implementation of such strategies would ensure that the City of St. Helena reduces its overall contribution to cumulative GHG levels in the City and the State of California. While a Climate Action

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		Plan would not be sufficient to meet the ambitious targets established by the State in order to reduce the impact to a level that is less than significant, it would nonetheless be a valuable contribution. As stated in MM-GHG-1, the Climate Action Plan would apply to GHG sectors that the City has direct or indirect jurisdictional control over and would include a community inventory; quantifiable targets for 2030, General Plan Update buildout in 2040, and 2050; and monitoring including 5-year reports. This would be useful information for the City of St. Helena as the risks associated with GHG emissions and climate change become more prevalent.
B10-9	Regarding Impact 3.13-2, the Napa Valley Transit Authority (NVTA) is not a congestion management agency (CMA). The County opted out of having a CMA and has no congestion management plan (CMP). Since there is no CMP, this impact should be written similar to the airport section.	References to the NVTA as a CMA have been removed in the first paragraph under Impact 3.13-2 on page 3.13-50. The paragraph has been updated to: "NVTA is the ~~CMA~~ transportation planning agency for Napa County. NVTA has not published a formal CMP for Napa County; however, the Vision 2040 Moving Napa Forward Transportation Plan does outline several goals related to the transportation system. The Main Street (SR-29) and Silverado Trail corridors are included in the Vision 2040 Plan. Therefore, for the purposes of this EIR, a significant impact is identified if the implementation of the Proposed Plan would result in a conflict with one or more of the following goals of the Vision 2040 Plan:"
B10-10	Regarding transportation mitigation measures on page 3.13-44, the mitigation measure call for two new signals. As part of the analysis, the team looked into what happens to the string of signals as a whole with the two added signals. The only problem is that there is at least one intersection where the delay is so high it is reported as >120 seconds, which means that that is the edge of analysis for the software. Beyond 120 seconds could mean 121 seconds or 1,001 seconds. Does this analysis account for delays above 120 seconds? If it is in reality much longer, the mitigation measure can cause a cascading set of failures. For example, at Grayson/Main, the analysis finds that even though the individual intersection looks like it will pass, the delay at Pope/Main is so long that it causes problems at Grayson/Main. If the delay at Pope/Main exceeds the limits of calculations and could cause a cascade of failures. Also, at Main/Sulphur and Main/Pratt, would the mitigation measure make things worse?	This comment is noted. Table 3.13-5 on pages 3.13-32 and 3.13-33 presents delay and LOS information for Existing Conditions and proposed General Plan Buildout Conditions. Intersections with delays greater than 120 seconds are noted as ">120" because the calculation methodologies become less precise as delays grow beyond 120 seconds. The analysis and findings of impact significance consider delays beyond 120 seconds using the actual calculated values, but delays are reported in the delay and LOS tables as noted to promote clarity in the text. Typically, the cutoff choice in delay value for reporting in delay and LOS tables is done based on local convention and past precedent set by other traffic analyses (for consistency purposes). Appendix I provides transportation modeling outputs used in the population of Table 3.13-5. For the intersection of Pope Street/Main Street (the intersection that primarily generates the long queues noted in the comment), average whole-intersection delays were calculated to not be in

Comment ID	Comment	Response
		excess of 160 seconds. At Silverado Trail/Pope Street, the side street delay (noted in paratheses) is noted as ">120," with the calculated delay in excess of 200 seconds in some cases. The intersection of Grayson/Main was noted as a significant impact because the congestion associated with Pope Street/Main Street may affect operations at the intersection. The addtional signals on Main Street at Pratt Avenue and Sulphur Springs Avenue would mitigate the anticipated significant impact to side-street, stop-controlled operations at these locations, which are based on the side street delay. Additional benefits related to safety may ocurr through the installation of signals. Ultimately, the signal at Pope/Main is the controlling intersection throughout the system, and improvements related to capacity enhancements, traffic demand reallocation (through additions to the street grid discussed in the document), of traffic demand reductions (through sustainable transportation practices) must be implemented to improve the congestion generated by Pope/Main; reduced congestion at Pope/Main would have cascading benefits throughout the system.
B10-11	Regarding MM-TR-3, this reads as though at least one set of extensions must be implemented. In approving the environmental document, are these extensions also being approved?	This comment is noted. As noted in the response to comment A3-B-16, the Proposed Plan notes, on page 5-19, that a "Special Study" and City Council approval is required prior to construction of the roadway extensions identified in Figure 5.2 of the Proposed Plan.
B10-12	Regarding MM-TR-5, the signalization of Silverado/Pope may not be feasible without replacing the operationally deficient bridge, as the bridge approach is narrow and inadequate.	This comment is noted. The provision of signalization at Silverado Trail/Pope Street may not necessarily require the replacement of the Napa River bridge or the construction of a second crossing. As an engineering study for the installation of the signal is conducted, the engineering study should assess the adequacy of the bridge structure as it relates to the signalization of the intersection.
B10-13	Regarding Impact 3.13-5, there seems to be a disconnect between the conclusion for Impact 3.13-1, which finds a significant and unavoidable impact for level of service, and this conclusion, which is less than significant for emergency access. How are the same set of operationally deficient roads ok for emergency access? If there is a need for a satellite fire station under current conditions, then in 2040, with no through streets on either the west or east side of 29 and worse traffic, how would emergency access for fire, police, and other emergency services not be affected? The analysis indicates congestion and LOS F on 29 and parts of town cannot be reached without 29, so those sections of town could	Impact 3.13-1 is related to traffic congestion and delay effects on the general traveling public, while Impact 3.13-5 is related to emergency access. Because motorists must yield and move out of the way for emergency vehicles responding to an emergency, increases in congestion for the general public do not necessarily translate to impediments to emergency vehicle access, so long as sufficient room (such as shoulders, wide tarvel lanes, parking lanes, or center two-way left turn lanes) are provided for emergency vehicles to pass vehicles that have yielded. As noted in Impact 3.13-5, the Proposed Plan would not result in changes to roadways that would lead to spatial

Comment ID	Comment	Response
	have a problem. This impact may be significant and unavoidable, and mitigation should be the same as MM-TR-3.	impediments for vehicles to pull over and allow passage by emergency vehicles. The SR-29/Main Street corridor has existing space in the center of the roadway for a two-way left turn lane along much of its length. Additionally, Proposed Plan implementing action CR4.G requires that the City consider the use of emergency vehicle signal preemption technologies in locations where emergency response times are not met. Because the implementation of the Proposed Plan would not result in further impediments to emergency vehicle access, the impact is noted as less than significant.
B10-14	Figure 3.13-1: Roadway Classification has an error in the depiction of Vallejo near Sulphur Spring. It should match Figure 3.13-2.	The roadway classifications of Vallejo Avenue near Sulphur Springs do match, and no further response is required.
B10-15	Regarding Impact 3.13-5, how can there be adequate emergency access if emergency vehicles have to go to Deer Park to access parts of the city?	Adequacy of emergency access is related to the ability of emergency vehicles to respond to emergencies in a timely manner. As noted in the response to comment B10-10, implementation of the Proposed Plan would not result in roadway facilties whereby emergency vehicles could not bypass traffic yielding to emergency vehicles. Other policies and implementing actions are designed to require that the City review emergency vehicle access over the course of the implementation of the Proposed Plan and, in the case of implementing action CR4.G, install equipment to alleviate emergency access issues that arise in the future. Because the implementation of the Proposed Plan would not result in further impediments to emergency vehicle access, the impact is noted as less than significant.
B10-16	How does the analysis account for significant impacts that could be caused by implementation of the mitigation measures?	Proposed mitigation measures in the DEIR are considered at a program level prior to inclusion. In general, mitigation measures encompass requirements or conditions for new development, or commitments for the City to undertake programmatic or policy actions, but do not themselves propose site-specific projects. Where mitigation measures require action from developers, these would take place as part of the development review process, during which the environmental impacts of the project as a whole would be assessed according to CEQA and the City's Municipal Code. Where mitigation measures require the City to develop a plan or program, impacts of the resulting plan or program would be assessed according to CEQA requirements and other local procedures as warranted.

Comment ID	Comment	Response
		In the case of Section 3.13: Transportation and Traffic, mitigation measures would require specific improvements to certain intersections. Mitigation measures TR-1 through TR-6 call for traffic signals, a roadway extension, and an intersection realignment. In such cases, mitigation measures are also assessed at the program level – traffic impacts were modeled with and without the mitigation measures to ascertain that the measures would not worsen traffic impacts. Potential alignments were considered to determine that adequate right-of-way exists to accommodate the improvements. However, as the improvements have not yet been designed or planned at the project level, detailed project-level environmental review is not possible at this time, and would occur in accordance with CEQA at the time of implementation. Additionally, prior to implementation, the measures would be subject to further engineering study (for example, the installation of a signal would require a study at the time the project is commenced to determine turn pocket lengths for queuing, the appropriate signal timing to minimize delay using updated counts/forecasts, and other features that promote pedestrian, bicyclist and motorist safety).

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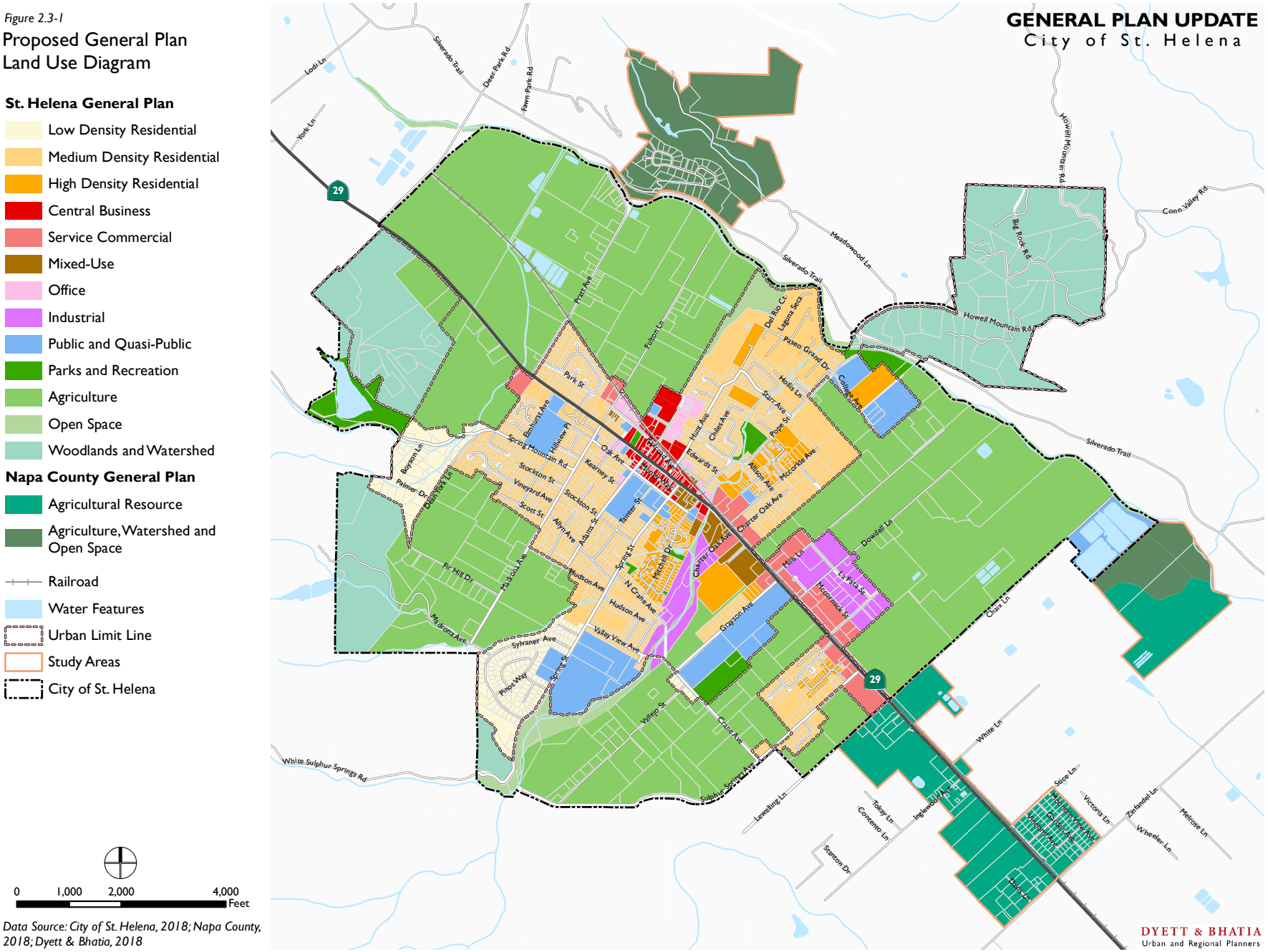
Agenda Item #5.1.

Figure 2.3-1

Proposed General Plan Land Use Diagram

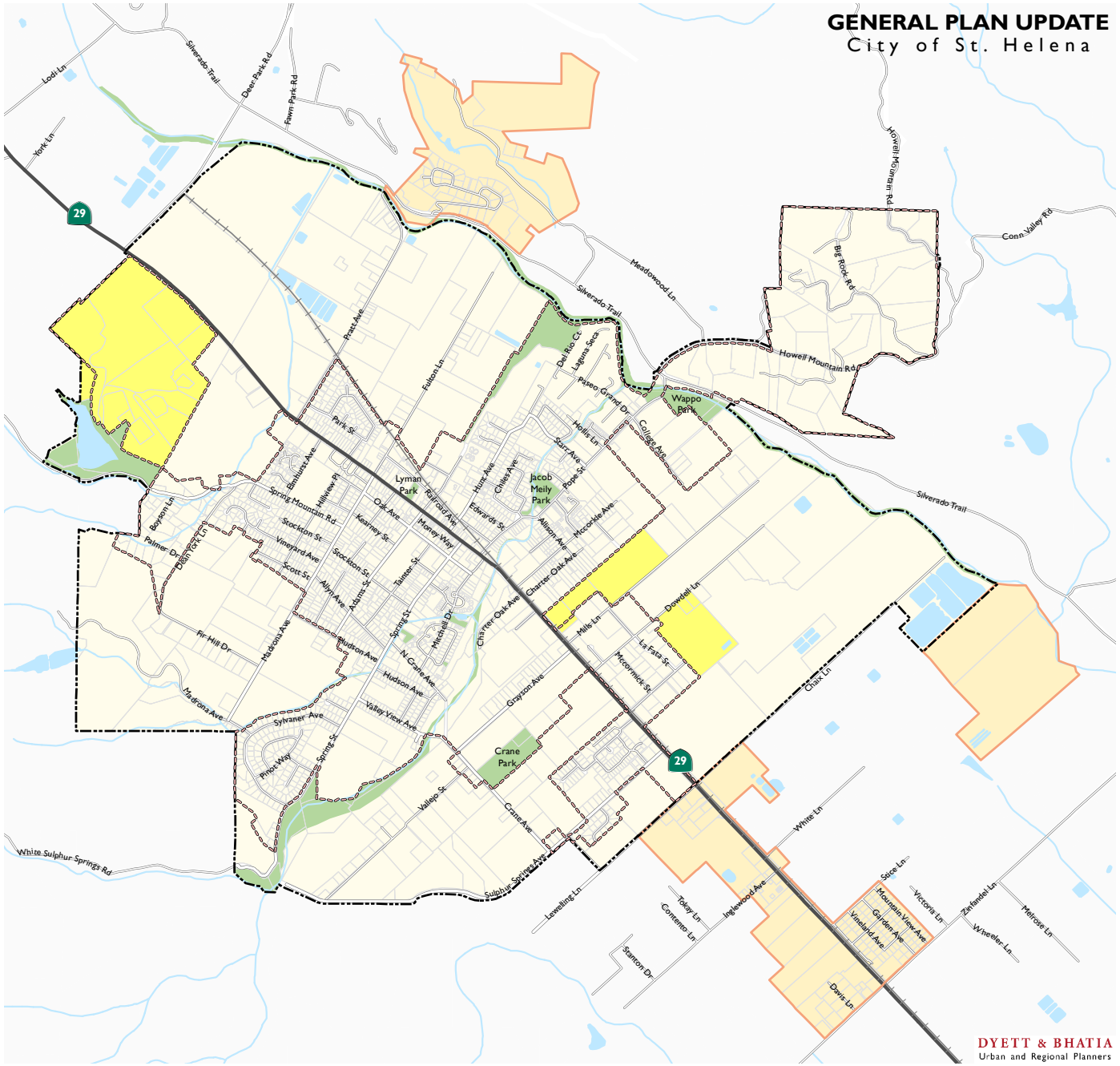


Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 2.3-2

Urban Limit Line and Urban Reserve Areas

- Urban Reserve Areas
- Urban Limit Line
- Railroad
- Water Features
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 2.3-3

Land Use Change Areas

- Change Areas

St. Helena Land Use

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Service Commercial
- Mixed-Use
- Office
- Industrial
- Public and Quasi-Public
- Parks and Recreation
- Agriculture
- Open Space
- Woodlands and Watershed

Napa County Land Use

- Agricultural Resource
- Agriculture, Watershed and Open Space

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

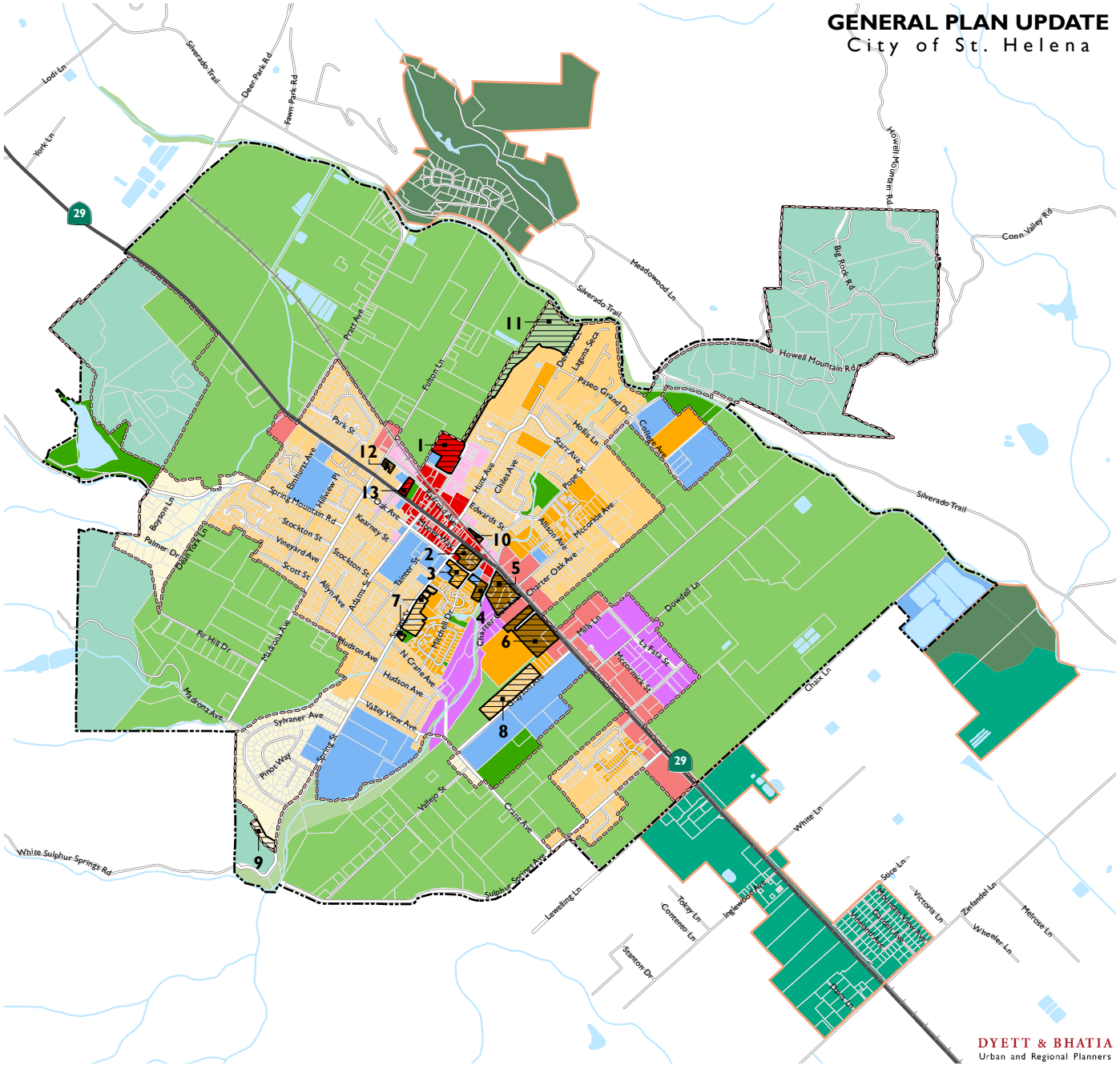
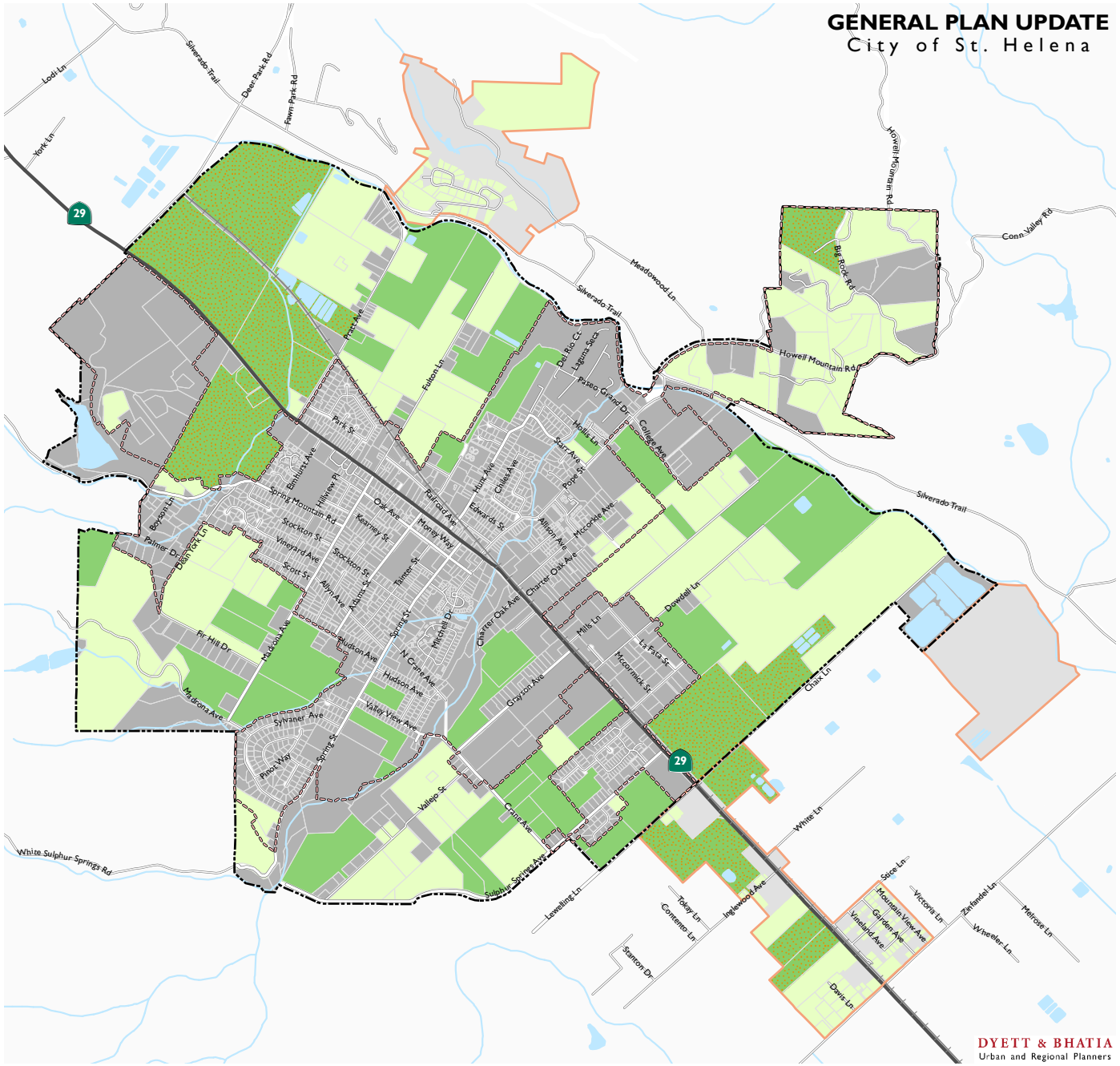


Figure 3.2-1

Existing Agricultural Land Uses

- Ag/Rural Residential
- Agriculture
- Winery
- Urban Limit Line
- Study Areas
- City of St. Helena

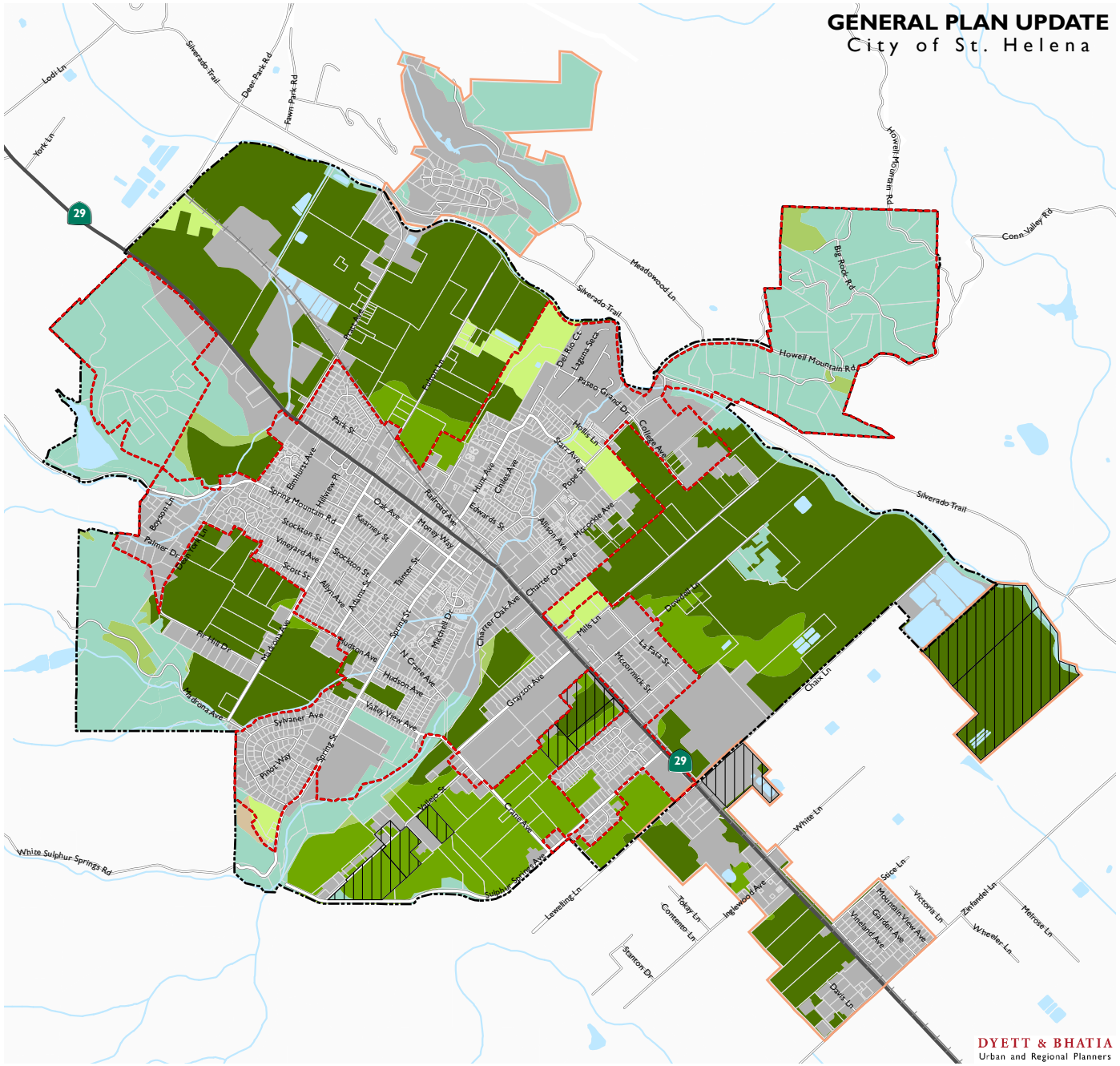


Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.2-2

Agricultural Resources

- Williamson Act Parcels
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land
- Other Land
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; FMMP, 2016; Dyett & Bhatia, 2018

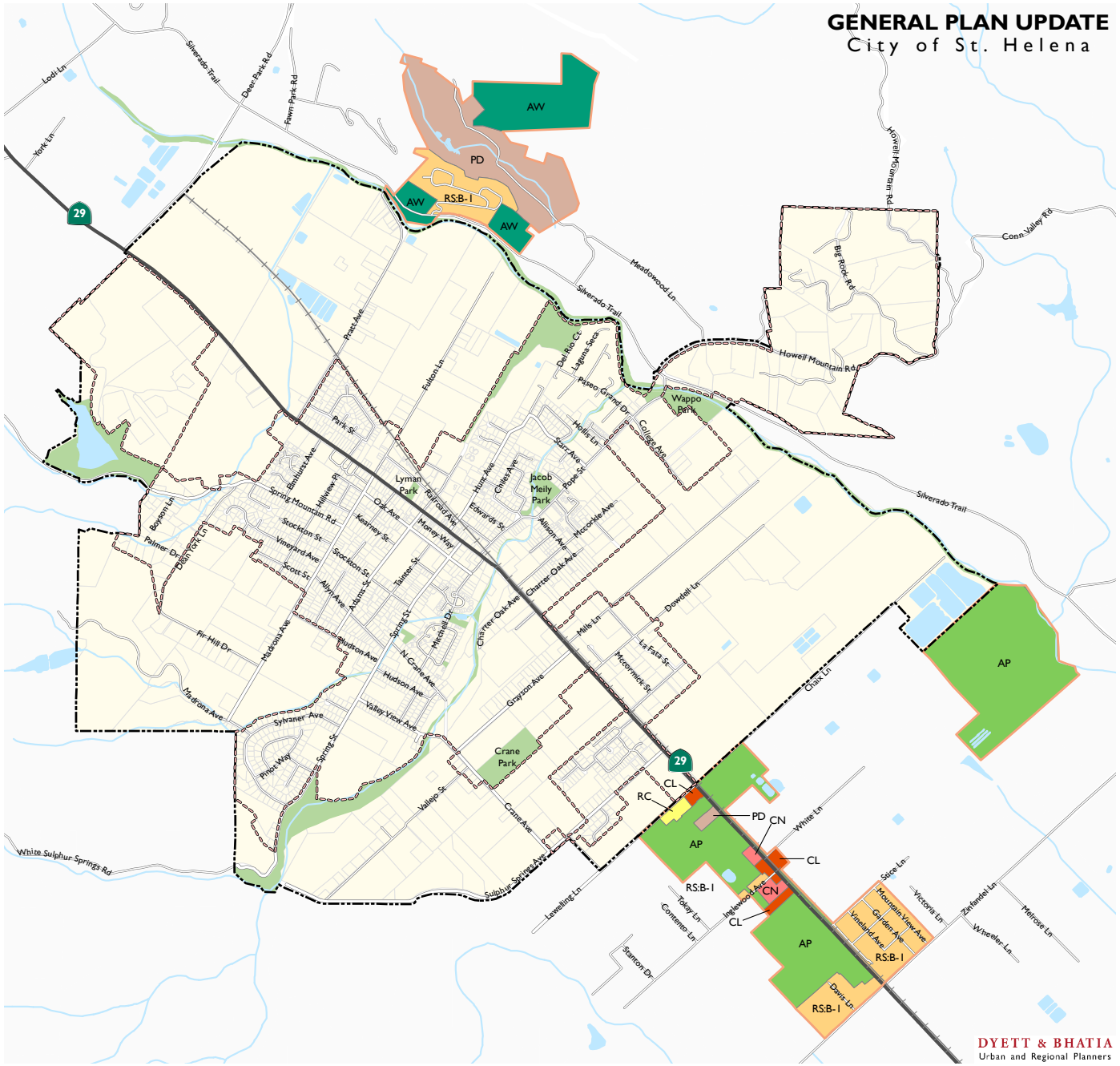
Figure 3.2-3

Napa County Zoning

County Zoning

- RC Residential Country District
- RS:B-1 Residential Single District
- CN Commercial Neighborhood District
- CL Commercial Limited District
- AP Agricultural Preserve District
- AW Agricultural Watershed District
- PD Planned Development District

- City of St. Helena
- Parks and Open Space
- Urban Limit Line
- Study Areas



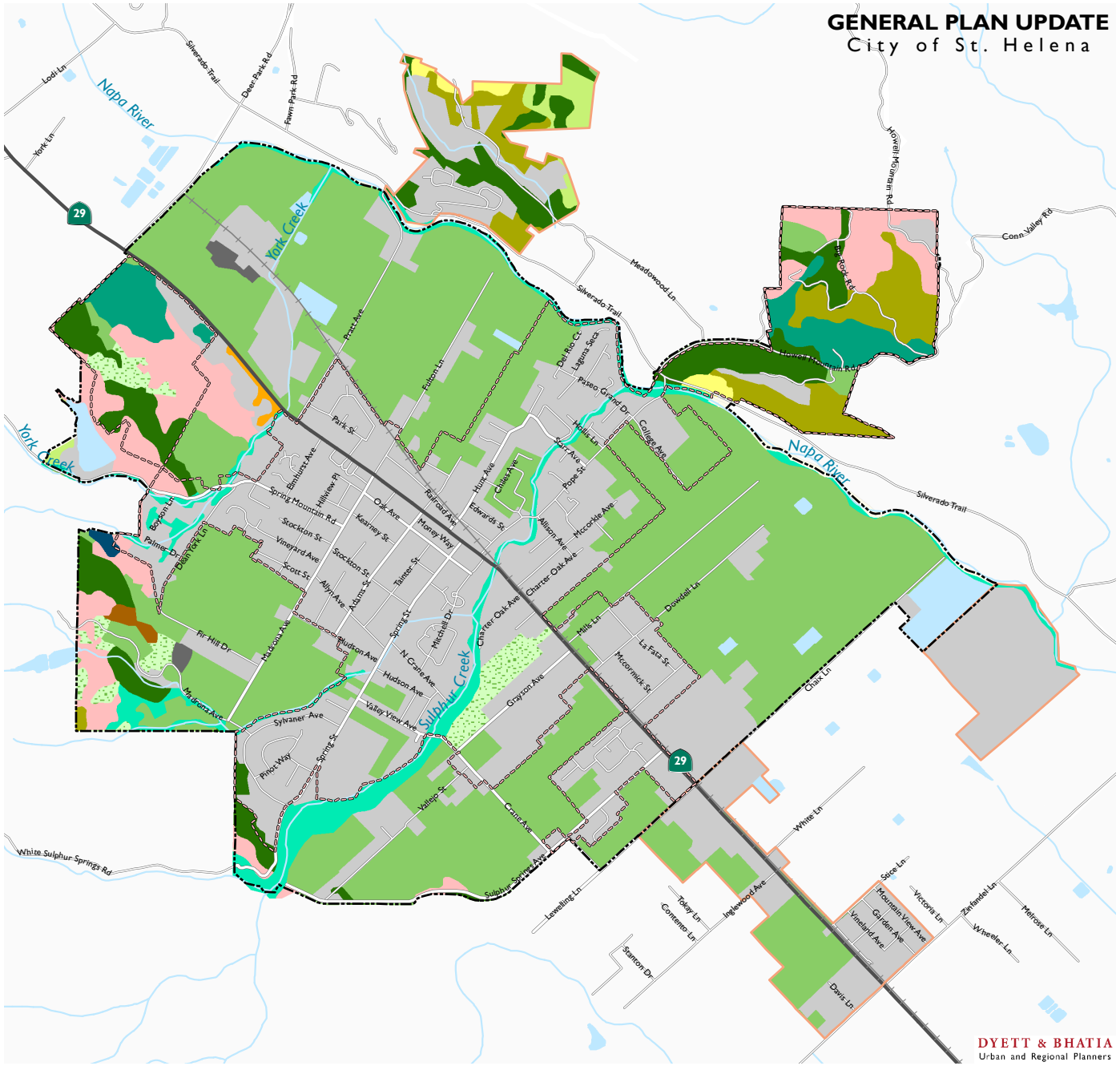
Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.4-1

Habitat Types

- Annual Grassland
- Mixed Chaparral
- Chamise-Redshank Chaparral
- Orchard-Vineyard
- Blue Oak Woodland
- Coastal Oak Woodland
- Valley Oak Woodland
- Eucalyptus
- Montane Hardwood
- Blue Oak-Foothill Pine
- Douglas-Fir
- Montane Riparian
- Urban
- Unknown
- Water Features

- Railroad
- Urban Limit Line
- Study Areas
- City of St. Helena

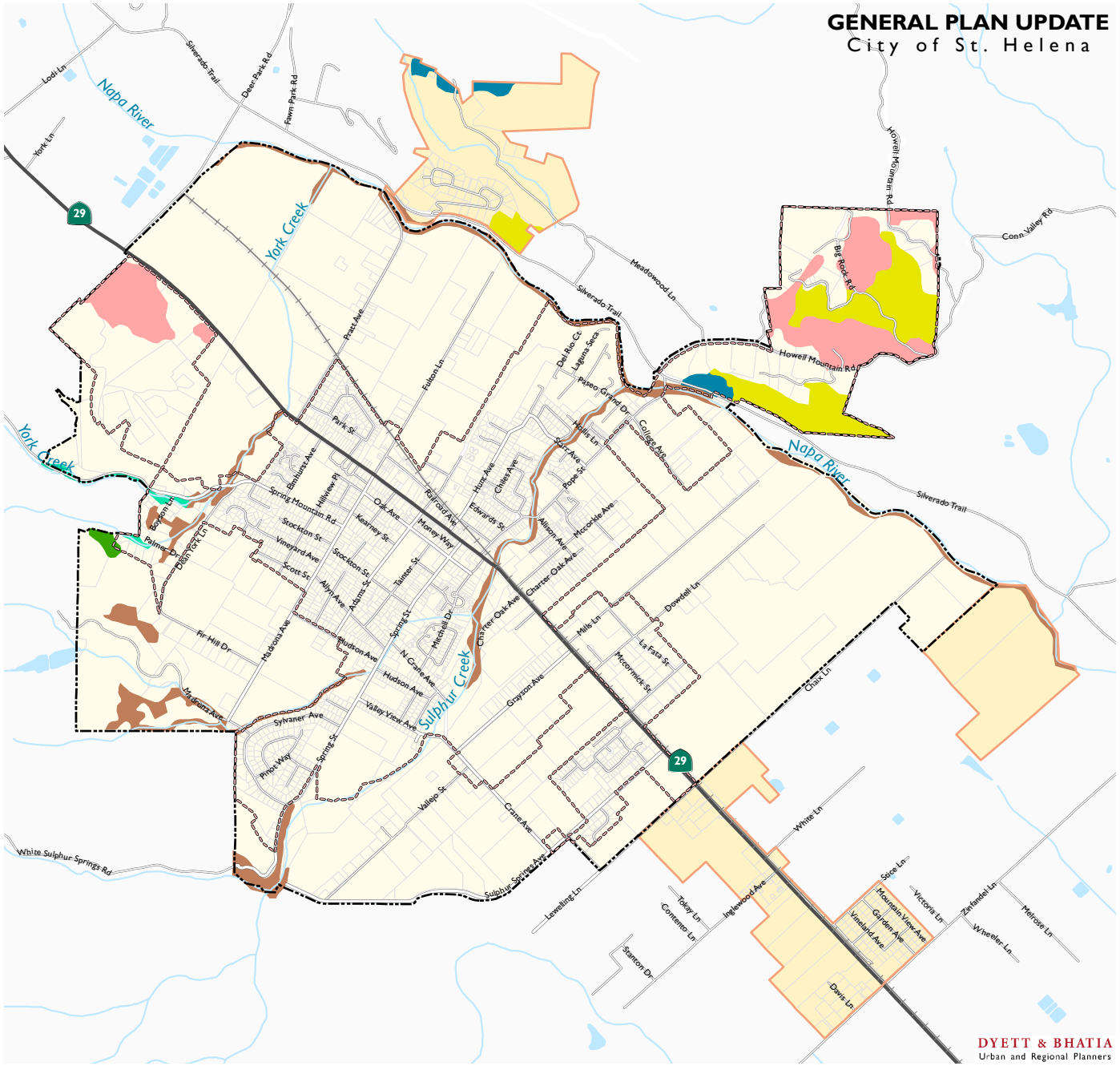


Data Source: City of St. Helena, 2018; Napa County, 2018; CA Department of Fish and Wildlife, Napa County and Blueridge Berryessa Dataset, 2018; Dyett & Bhatia, 2018

Figure 3.4-3

Sensitive Communities

- Adenostoma Fasciculatum Alliance
- Alnus Rhombifolia Alliance
- Pinus Sabiniana Alliance
- Quercus Agrifolia Alliance
- Quercus Douglasii Alliance
- Quercus Lobata Alliance
- Railroad
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; CA Department of Fish and Wildlife, Napa County and Blueridge Berryessa Dataset, 2018; Dyett & Bhatia, 2018

Figure 3.4-4

St. Helena Heritage Trees

Heritage Trees

Railroad

Water Features

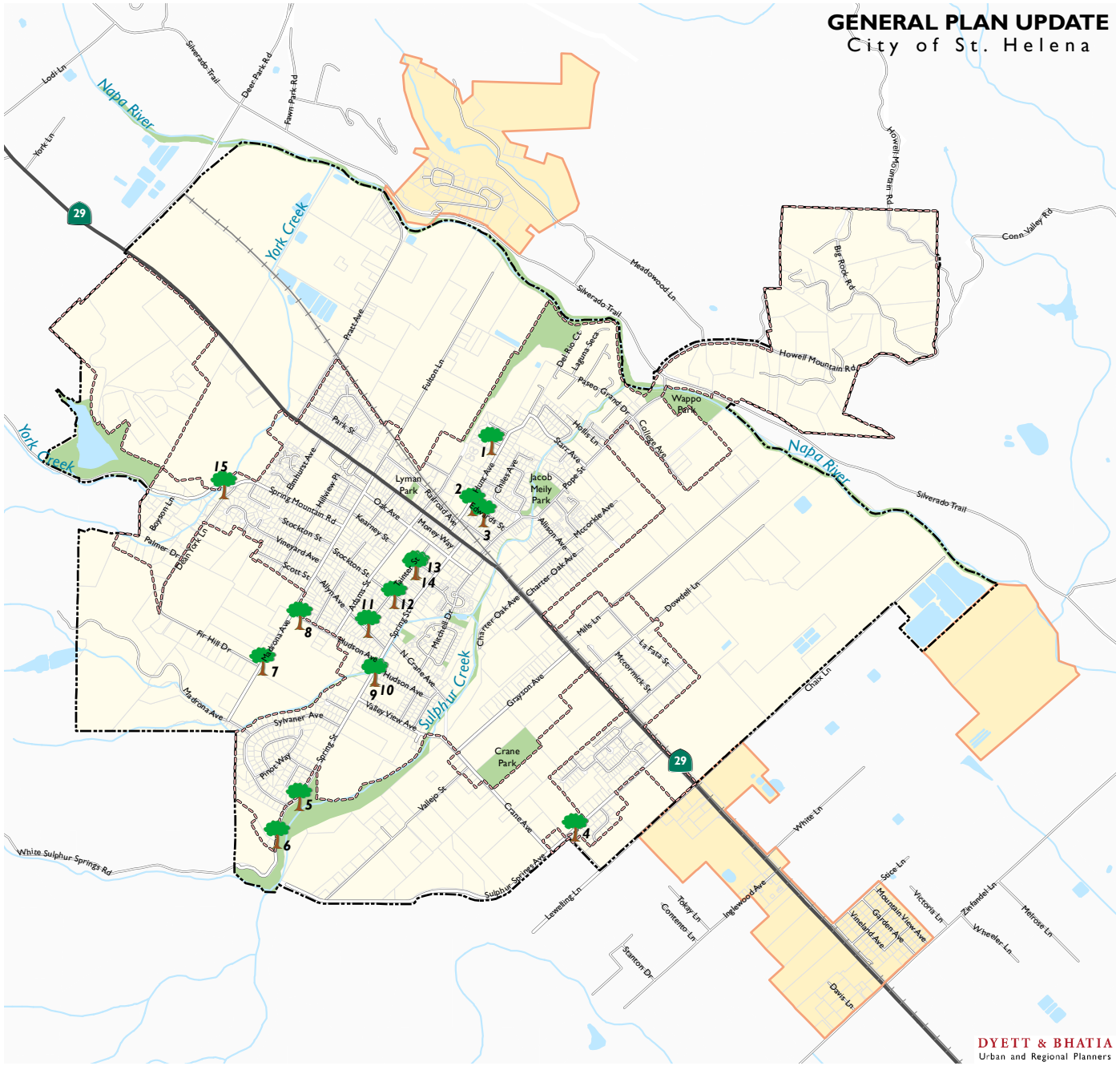
Parks and Open Space

Urban Limit Line

Study Areas

City of St. Helena

St. Helena Heritage Tree Location		
SN	***Address***	***Type***
1	1350 Grove Court	41" Valley Oak
2	957 Hunt Avenue	47" Douglas Fir
3	1201 Edwards St.	42" Valley Oak
4	1671 Sulphur Springs Ave	50" Coast Live Oak
5	2660 Spring Street	30" Coast Live Oak
6	2790 Spring Street	36" Valley Oak
7	2126 Madrona Avenue	39" Valley Oak
8	1544 Hudson Avenue	34" Vallley Oak
9	1918 Spring Street	32" Valley Oak
10	1918 Spring Street	52" Valley Oak
11	1276 Allyn Ave	50" Coastal Redwood
12	1256 Stockton Street	36" Incense Cedar
13	1413 Tainter Street	36" Valley Oak
14	1417 Tainter Street	36" Valley Oak
15	2080 Spring Mountain Rd	45" Coast Live Oak



Data Source: City of St. Helena, Department of Public Works, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.5-1

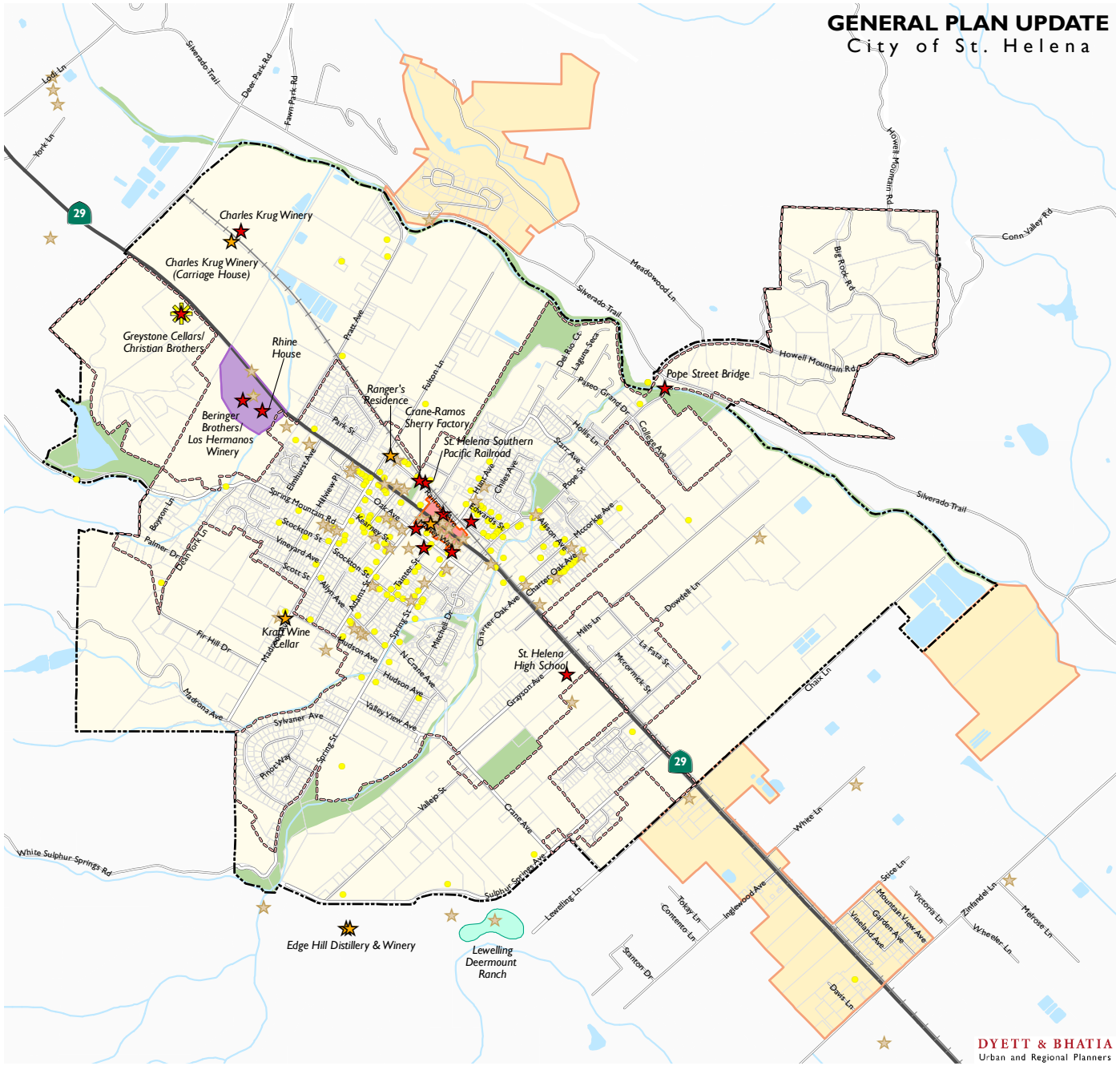
Historic Resources

- National Register
- California Register
- State Landmark
- Eligible for National Register or California Register
- Locally-Designated Resources

National Historic District

- St. Helena Historic Commercial District
- Beringer Winery Historic District
- Lewelling "Deermount" Ranch Historic District

- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.5-2

Historic Resources Downtown St. Helena

- National Register
- California Register
- Eligible for National Register or California Register
- Contributor to Historic District
- Locally-Designated Resources
- St. Helena Historic Commercial District
- Parks and Open Space
- Urban Limit Line
- Study
- City of St. Helena

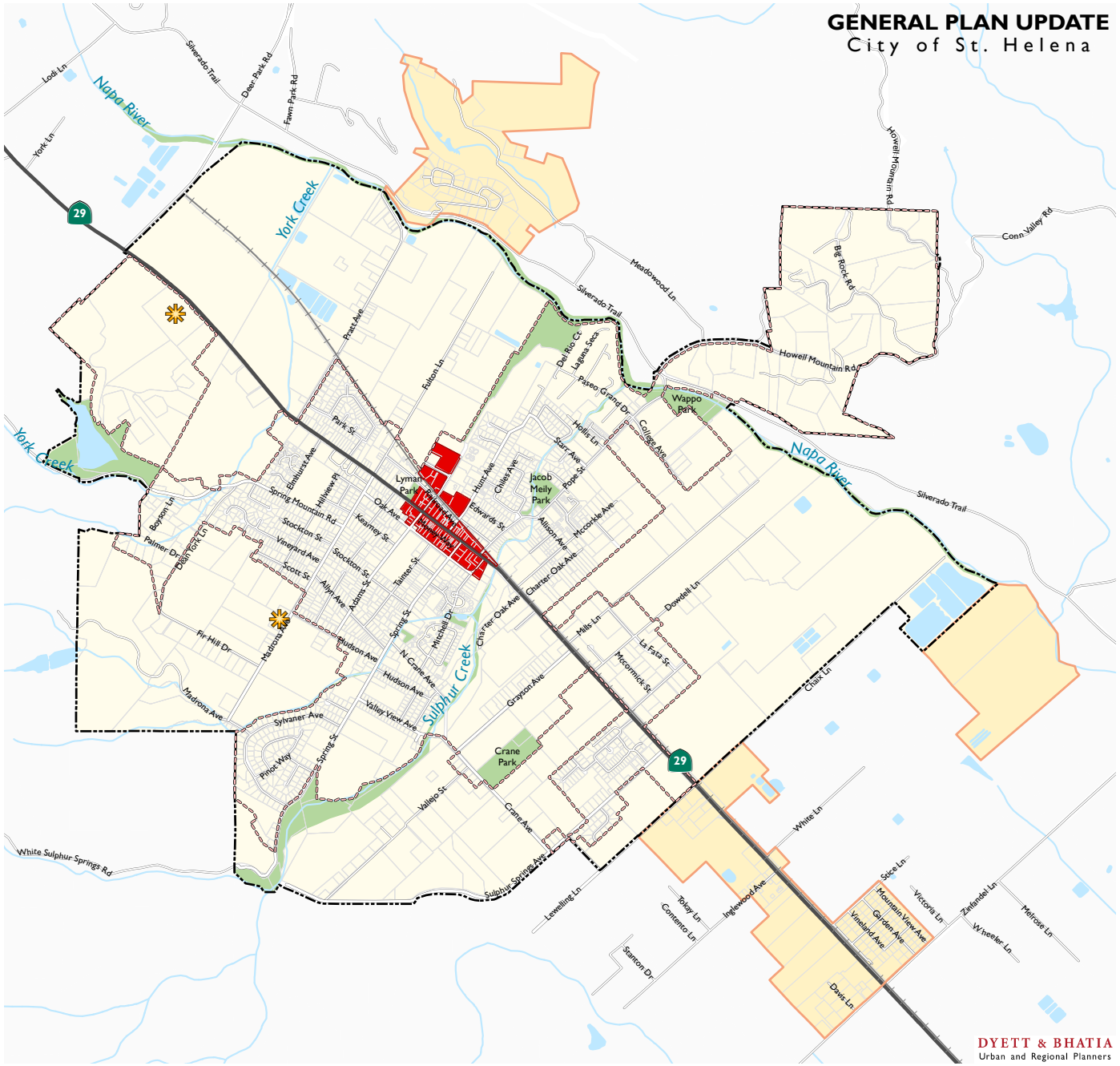
0 62.5 125 250 Feet

Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.5-3

Central Business and Historic Preservation Overlays

- CB Central Business Zoning District
- HP Historic Preservation Overlay
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.7-1

Soil Types

- Aiken Loam (102)
- Bale Clay Loam (104, 105)
- Bale Loam (103)
- Boomer-Forward-Felta Complex (110)
- Boomer Gravelly Loam (109)
- Cole Silt Loam (118)
- Cortina Very Gravelly Loam (124)
- Cortina Very Stony Loam (125)
- Felton Gravelly Loam (136)
- Forward Gravelly Loam (138, 139, 140)
- Forward-Kidd Complex (141)
- Hambright-Rock Outcrop Complex (151, 152)
- Henneke Gravelly Loam (153, 154)
- Maxwell Clay (161)
- Perkins Gravelly Loam (168)
- Pleasanton Loam (170, 171)
- Riverwash (174)
- Rock Outcrop-Kidd Complex (177)
- Sobrante Loam (179)
- Yolo Loam (181, 182)
- Water (183)

- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

0 1,000 2,000 4,000 Feet

Data Source: USDA Soils Data, 2017; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

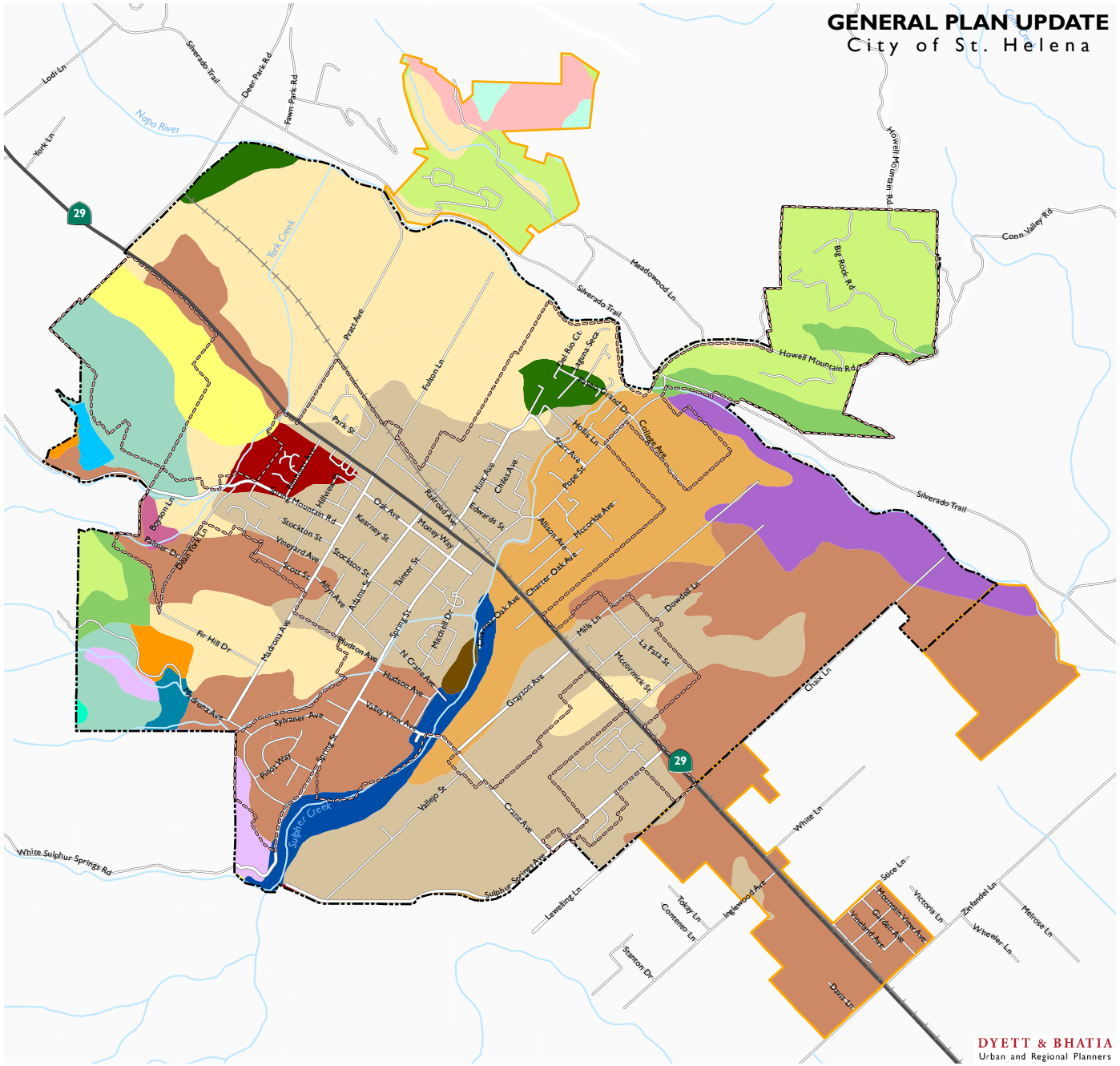
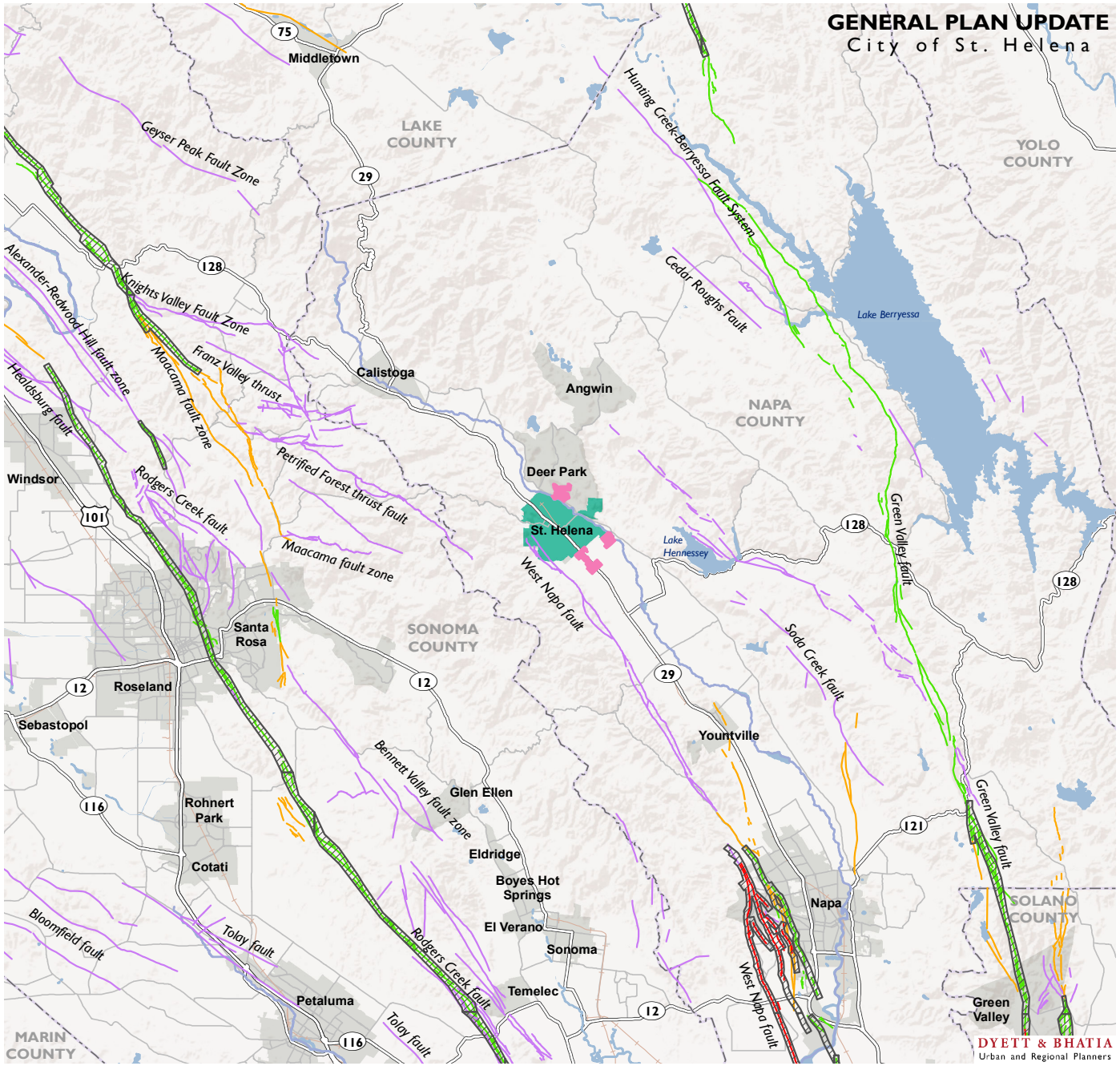


Figure 3.7-2

Active Faults [Updated]

- Historic (<150 years)
- Latest Quaternary (<15,000 years)
- Late Quaternary (<130,000 years)
- Undifferentiated Quaternary (<1.6 million years)
- Alquist Priolo Fault Zones
- Freeway/Major Highway
- Major/Minor Roads
- Railroads
- Waterbodies
- Study Areas
- City of St. Helena
- Urban Areas
- County Boundary



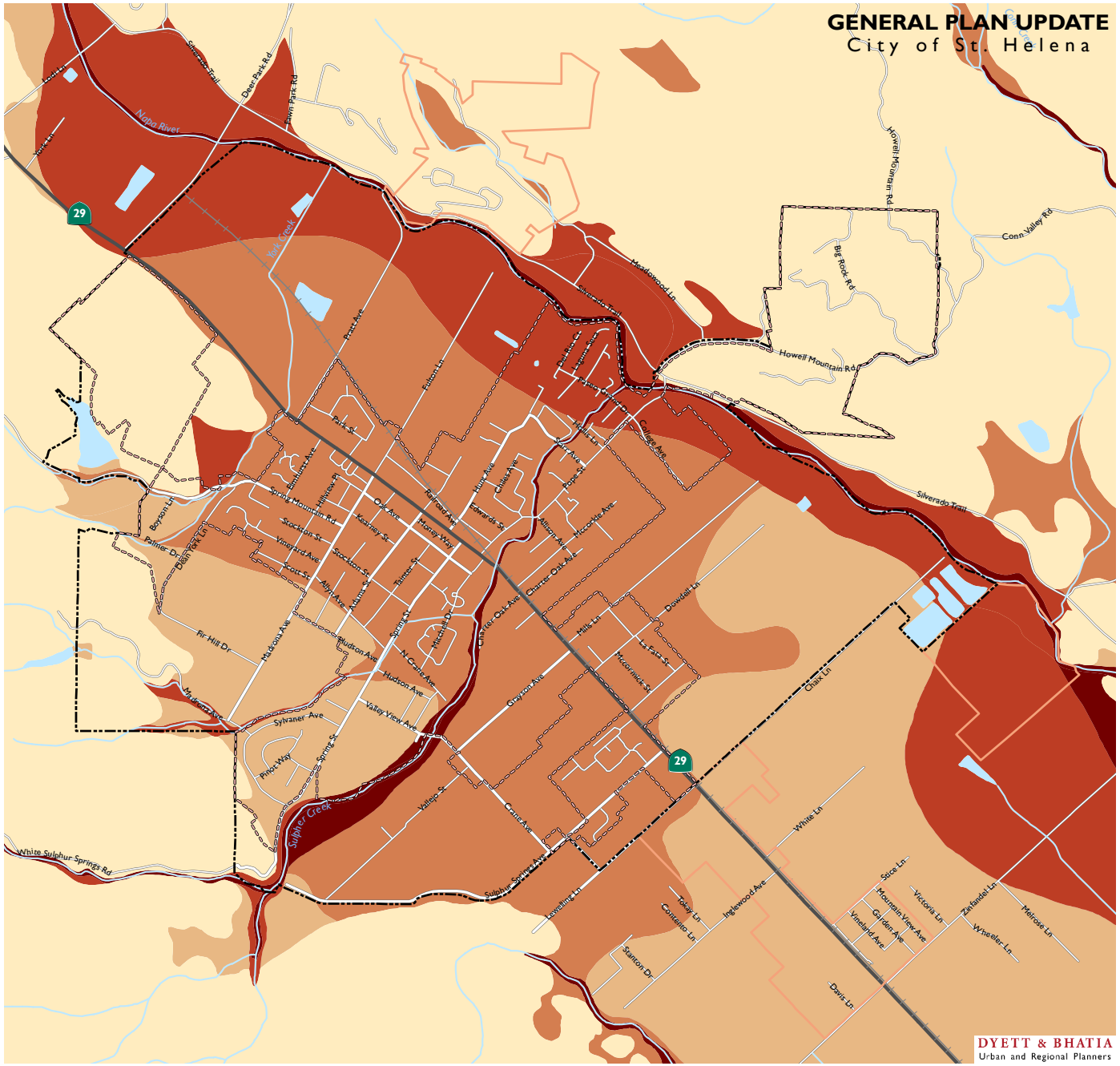
Data Source: City of St. Helena, 2018; Napa County, 2018; USGS and CGS, Quarternary Fault and Fold Database for the U.S., 2018; Dyett & Bhatia, 2018

Figure 3.7-3

Liquefaction Susceptibility

- Very High
- High
- Medium
- Low
- Very Low
- Water

- Railroads
- Urban Limit Line
- Study Areas
- City of St. Helena



0 1,000 2,000 4,000 Feet

Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

DYETT & BHATIA
Urban and Regional Planners

Figure 3.7-4

Landslide Susceptibility

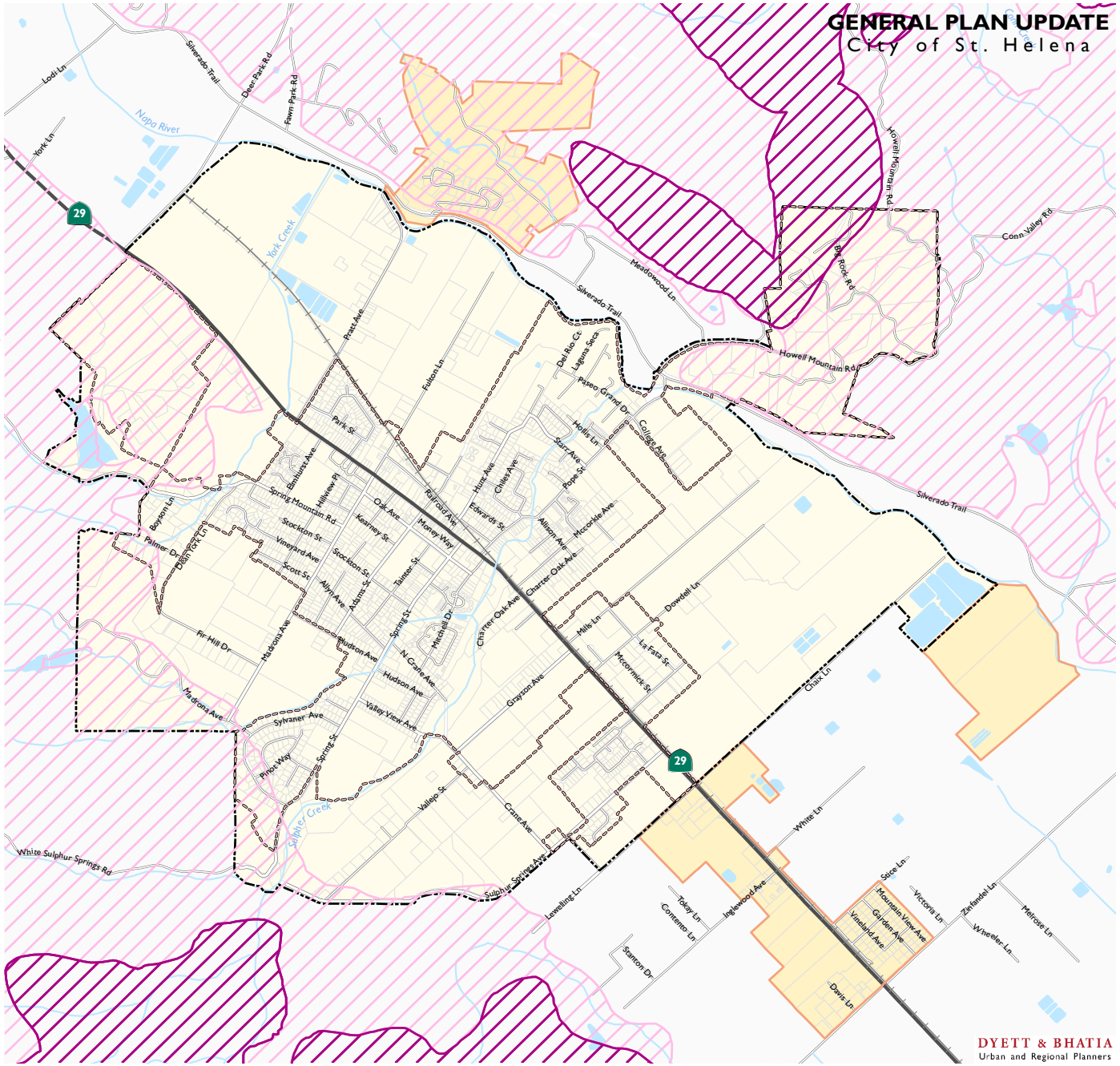
Existing Landslide Distribution

- Mostly Landslide
- Few Landslides

- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Mostly Landslides - Consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides; defined by drawing envelopes around groups of mapped landslides.

Few Landslides - contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides; defined by drawing envelopes around areas free of mapped landslides.

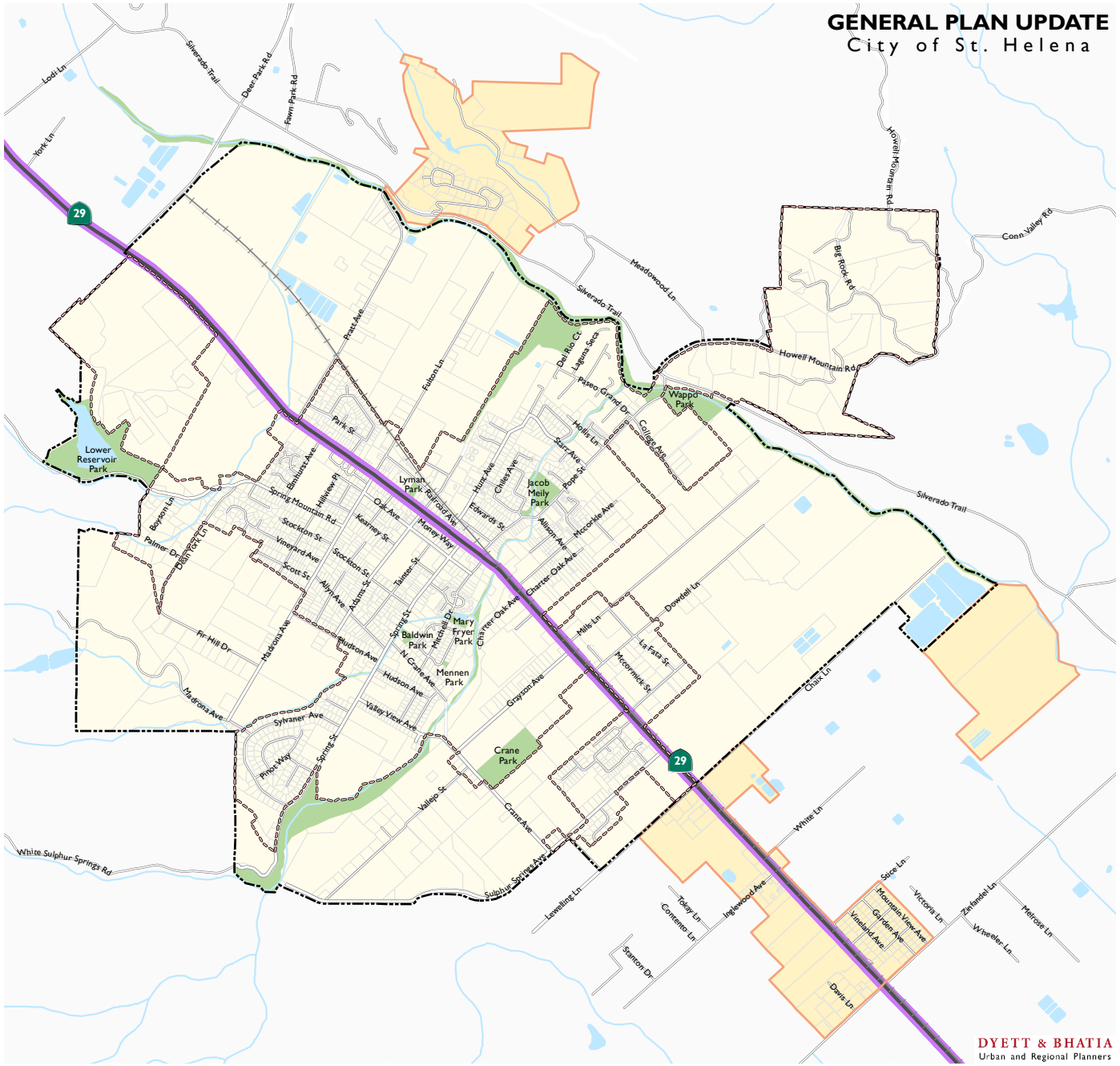


Data Source: USGS, provided by Assocation of Bay Area Governments (ABAG) Resilience Program; 1997, City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.8-1

Truck Routes

- State Truck Routes
- Highway
- Railroads
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Truck Network, Caltrans GIS Data, 2018; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.8-2

Hazardous Materials Sites

Geotracker (SWRCB)

Cleanup Sites

- Leaking Underground Tank (LUST) Cleanup Site
- Other Cleanup Site
- × Closed Site

Permitted Facilities

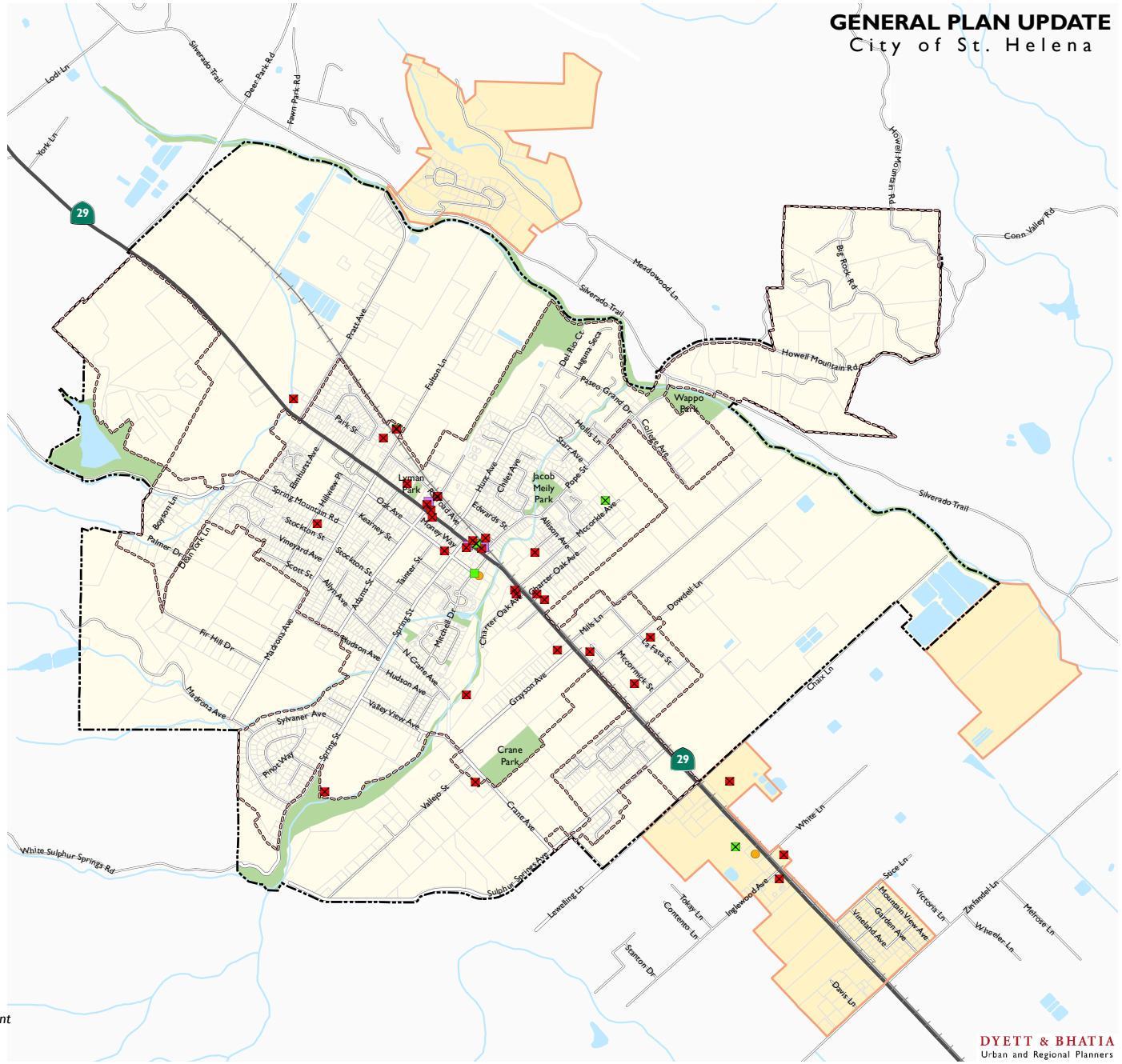
- Permitted Underground Storage Tanks (UST)

Envirostor (DTSC)

Cleanup Sites

- Volunatry Cleanup

- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Geotracker, State Water Resources Control Board (SWRCB), 2018; Envirostor, Department of Toxic Substances Control (DTSC), 2018; City of St. Helena, 2018; Dyett & Bhatia, 2018

Figure 3.8-3

Fire Hazards

Fire Hazard Severity Zones

State Responsibility Area (SRA)

- Very High
- High
- Moderate

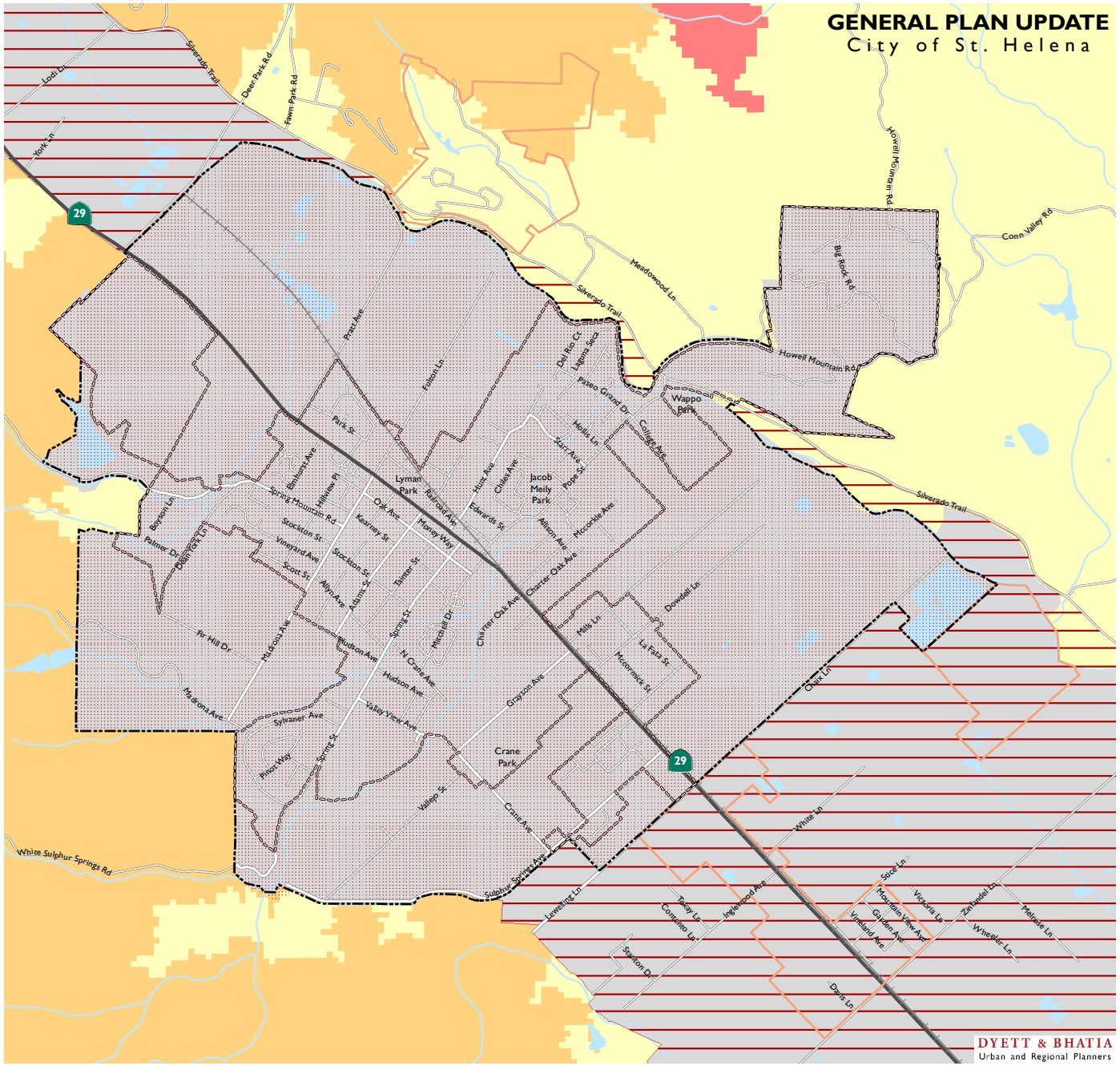
Local Responsibility Area (LRA)

- Very High
- Non-Very High

Fire Protection Responsibility

- LRA - Incorporated
- LRA - Unincorporated

- Urban Limit Line
- Study Areas
- City of St. Helena



0 1,000 2,000 4,000 Feet

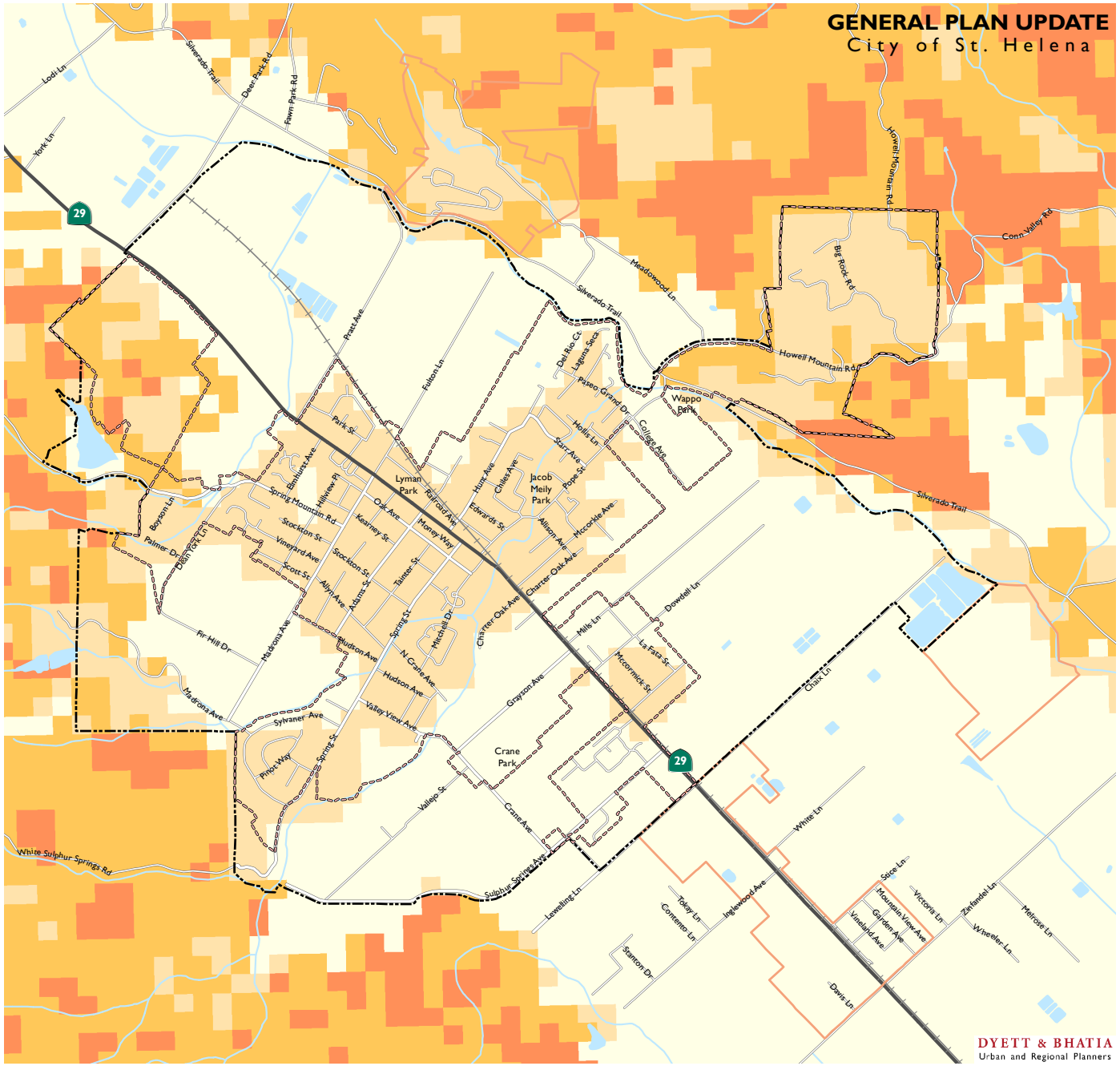
Data Source: Fire Hazard Zone, Fire and Resource Assessment Program (FRAP), Cal Fire, 2005; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.8-4

Fire Threat

Fire Threat Level (Cal Fire)

- Extreme Threat
- Very High Threat
- High Threat
- Moderate Threat
- Little or No Threat
- Urban Limit Line
- Study Areas
- City of St. Helena



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Data Source: Fire Threat, Fire and Resource Assessment Program (FRAP), Cal Fire, 2005; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.8-5

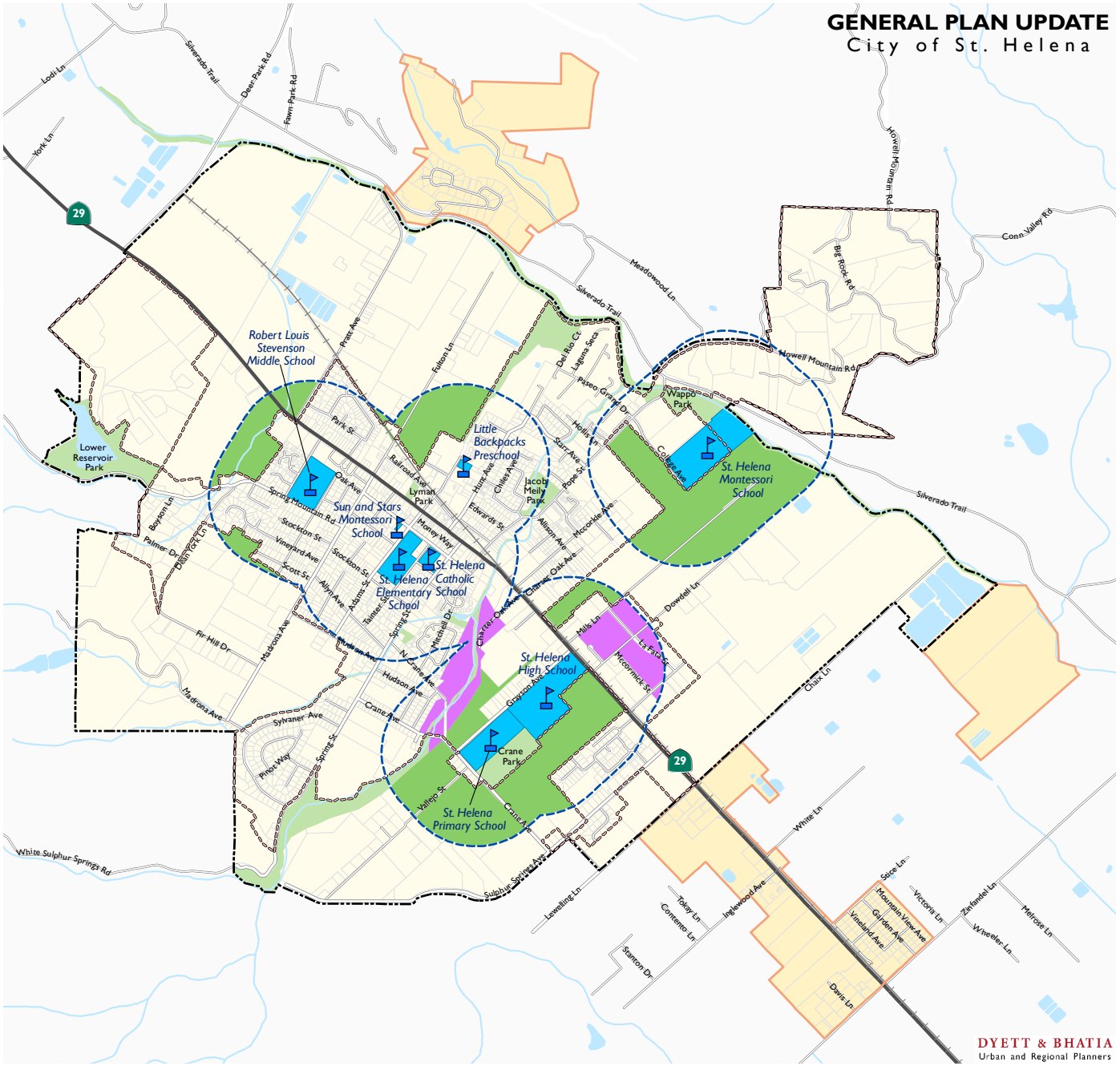
Proposed Land Use Within a Quarter-Mile of Schools

- Existing Schools
- Existing Schools Quarter Mile
- School Property

Proposed Land Use

- Industrial
- Agriculture

- Railroads
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

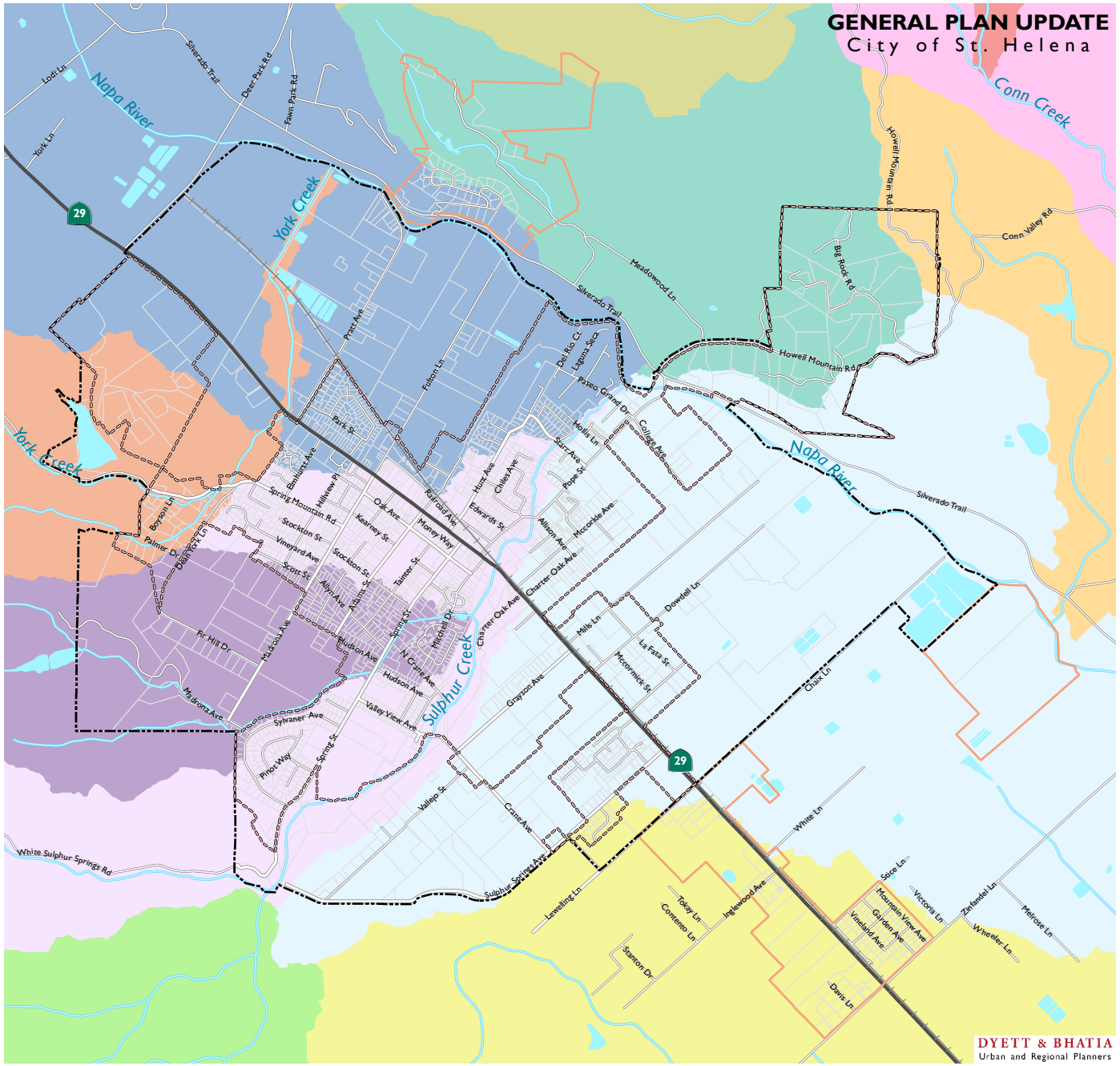


Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.9-1

Watersheds and Surface Water

- River/Streams
- Lakes/Ponds
- Bale Slough
- Canon Creek
- Conn Creek - East Fork
- Conn Creek - Main Fork
- Heath Creek
- Meadowood Creek
- Napa River-Lower St. Helena Reach
- Napa River-Upper St. Helena Reach
- Spring Valley Creek
- Sulphur Creek - Main Fork
- Sulphur Creek - North Fork
- York Creek
- Urban Limit Line
- Study Areas
- City of St. Helena



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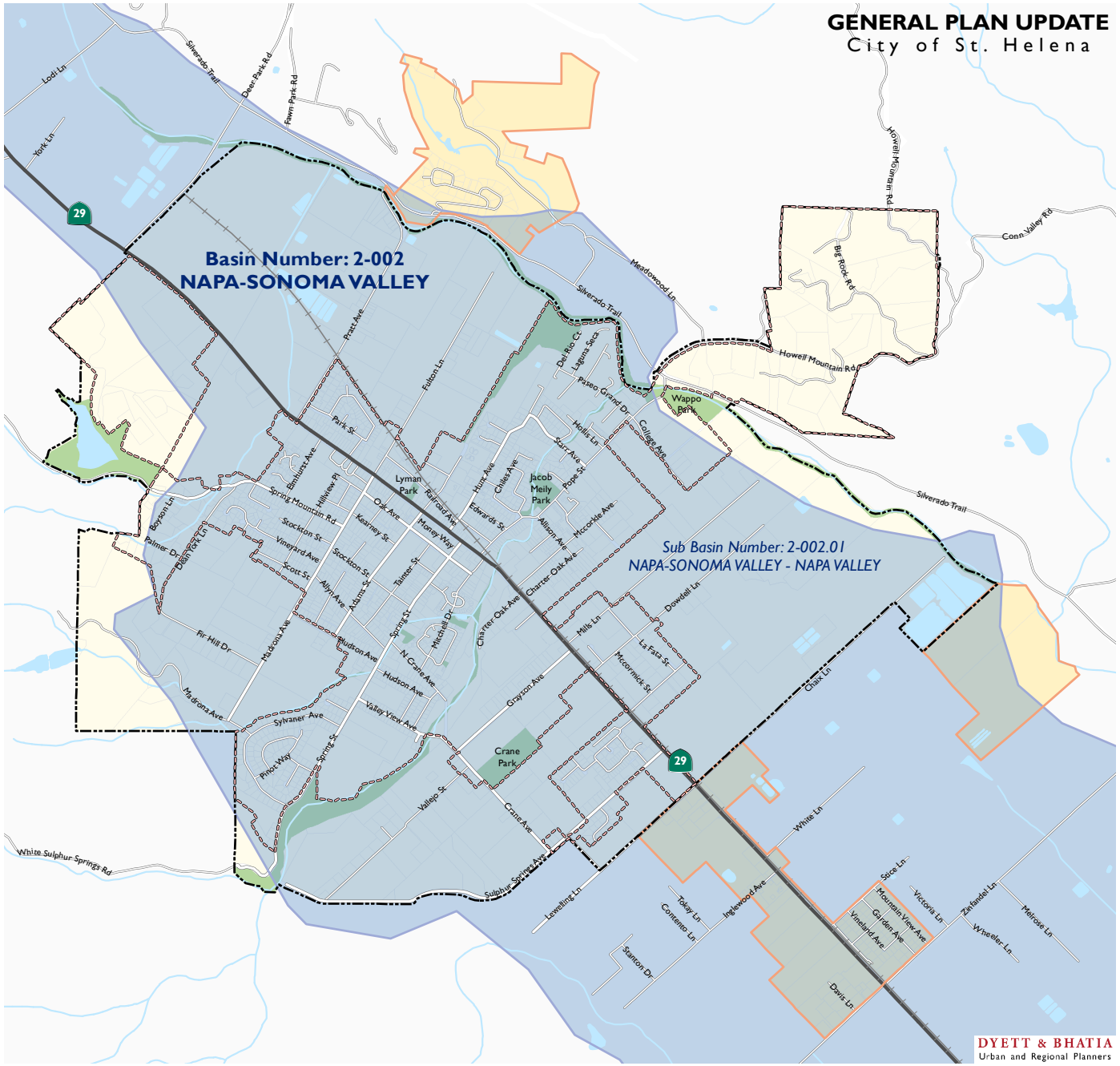
Data Source:Napa County Watersheds, Napa County GIS Data, 2005; City of St. Helena, 2018; Dyett & Bhatia, 2018

Figure 3.9-2

Groundwater Basins

- Groundwater Basins
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

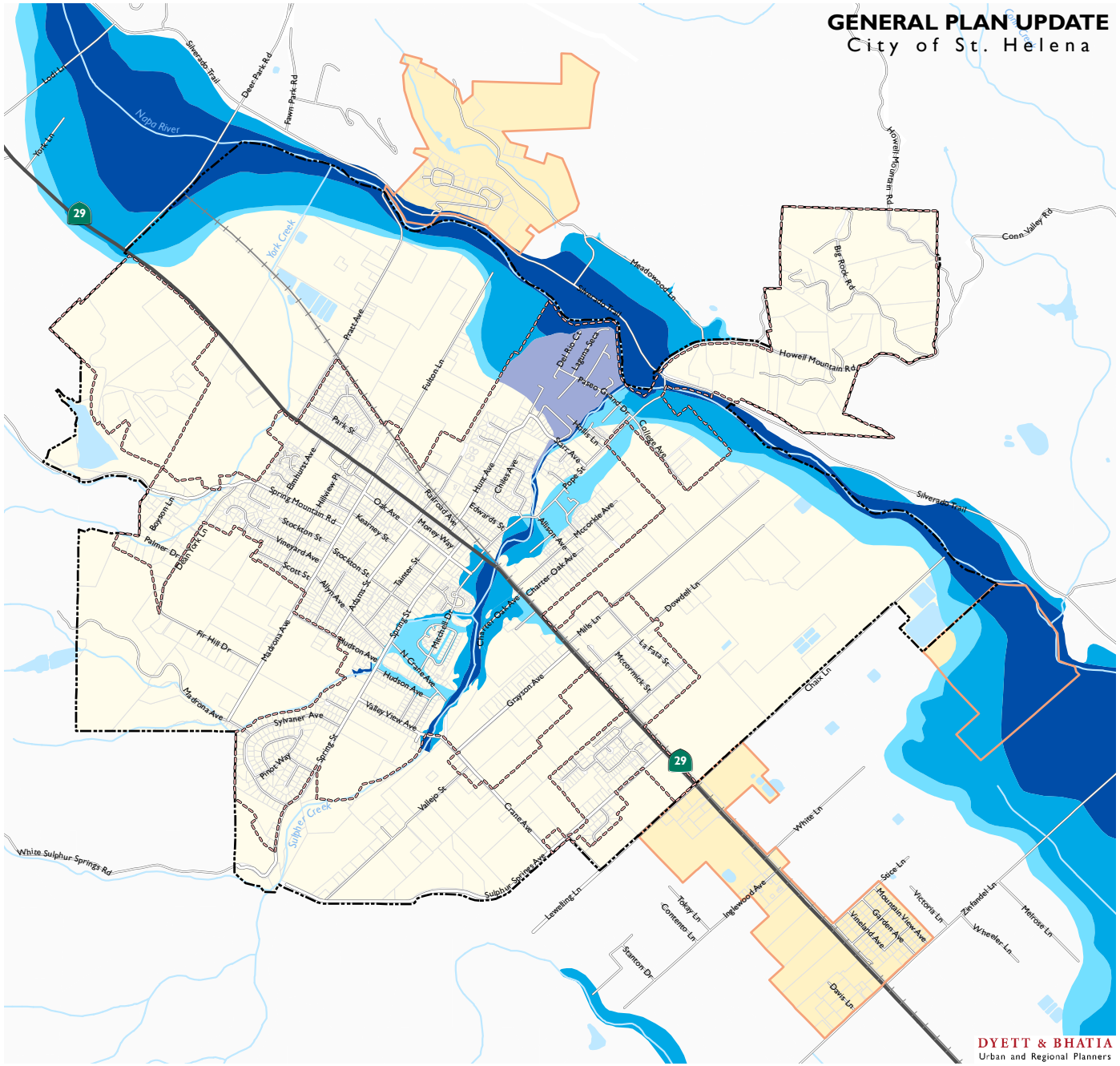


Data Source: CA Bulletin 118 Groundwater Basins, California Department of Water Resources, 2015; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.9-3

Flood Zones

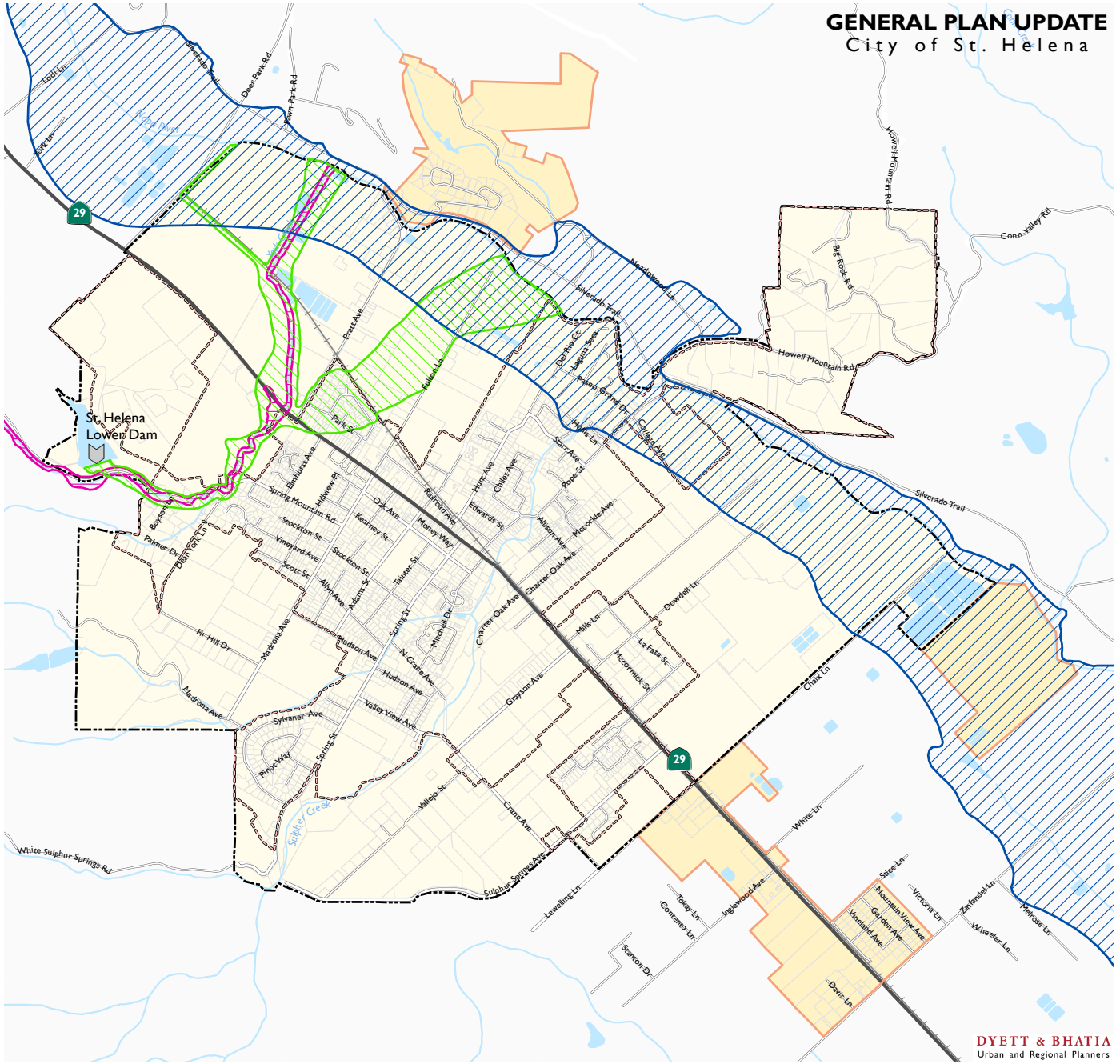
- Floodway
- 100-Year Flood Zone (1.0% Annual Chance Flood Hazard)
- 500-Year Flood Zone (0.2% Annual Chance Flood Hazard)
- Reduced Risk Areas due to Levee
- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; FEMA, 2018; Dyett & Bhatia, 2018

Figure 3.9-4

Dam Failure Inundation Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.9-5

Land Use Change Areas and Flood Zones

- Change Areas
- Floodway
- 100-Year Flood Zone (1% Annual Chance Flood Hazard)
- 500-Year Flood Zone (0.2% Annual Chance Flood Hazard)
- Reduced Risk Areas due to Levee

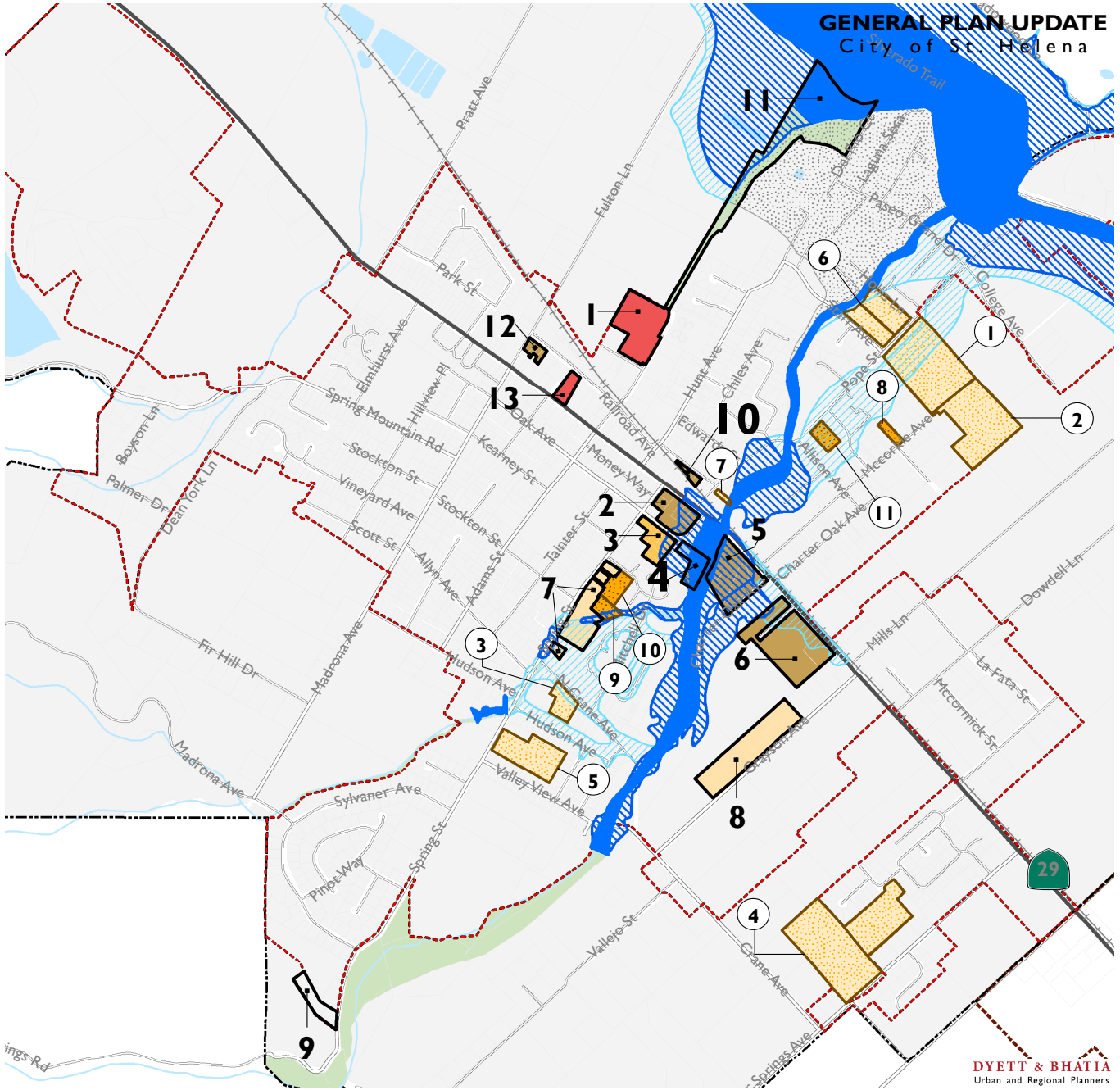
St. Helena Land Use

- Medium Density Residential
- High Density Residential
- Central Business
- Mixed-Use
- Public and Quasi-Public
- Open Space

Housing Opportunities Sites

- Medium Density Residential
- High Density Residential

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.10-1

Existing Land Uses

- Ag/Rural Residential
- Single Family Residential
- Townhomes
- Multi Family Residential
- Mobile Home Park
- Hotel/Lodging
- Commercial
- Office
- Mixed Use
- Industrial
- Hospital/Health
- Educational Facilities
- Public/Quasi-Public
- Religious/Institutional Facilities
- Parks and Recreation
- Open Space
- Agriculture
- Winery
- Cemetery
- Utilities
- Vacant
- Railroad ROW
- Urban Limit Line
- Study Areas
- City of St. Helena

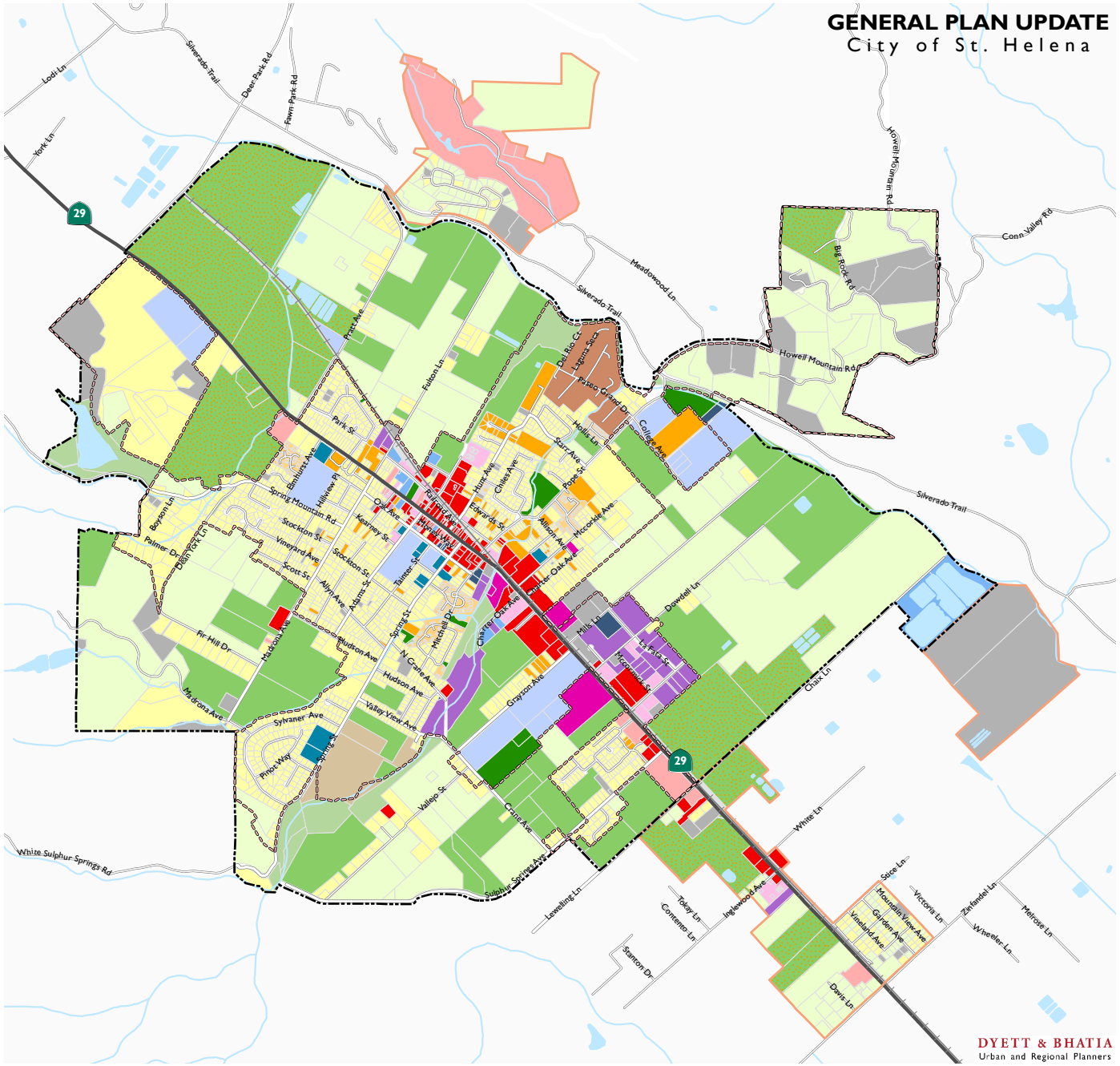

GENERAL PLAN UPDATE
City of St. Helena
29
Silverado Trail
Howell Mountain Rd
Conn Valley Rd
Big Rock Rd
Meadowood Ln
Howell Mountain Rd
Lodi Ln
York Ln
Deer Park Rd
Fawn Park Rd
Tract Ave
Fulton Ln
Park St
Spring Mountain Rd
Hillview Pl
Oak Ave
Kearney St
Stockton St
Vineyard Ave
Scott St
Alyn Ave
Adams St
Palmer Dr
Dean York Ln
Byxbee Ln
Fir Hill Dr
Madrona Ave
Sylvaner Ave
Pinot Way
Spring St
Madison Ave
Hudson Ave
Valley View Ave
Vallejo St
Crane Ave
White Sulphur Springs Rd
Sulphur Springs Ave
Lewelling Ln
Tokay Ln
Corretto Ln
Inglewood Ave
Santoni Dr
Davis Ln
Mountain View Ave
Galladen Ave
Vineland Ave
Victoria Ln
Spice Ln
Zinfandel Ln
Wheeler Ln
Melrose Ln
White Ln
Chiles Ave
Hunt Ave
Harris Ave
Hollis Ln
College Ave
Pope St
Allison Ave
McCorkle Ave
Charter Oak Ave
Dowdell Ln
Chiles Pope Valley Rd
Foothill Blvd
Tainter St
Mitchell Dr
N Crane Ave
Grayson Ave
Lodi Ln
Silverado Trail
Deer Park Rd
Fawn Park Rd
Meadowood Ln
Howell Mountain Rd
Conn Valley Rd
Big Rock Rd
Silverado Trail
Howell Mountain

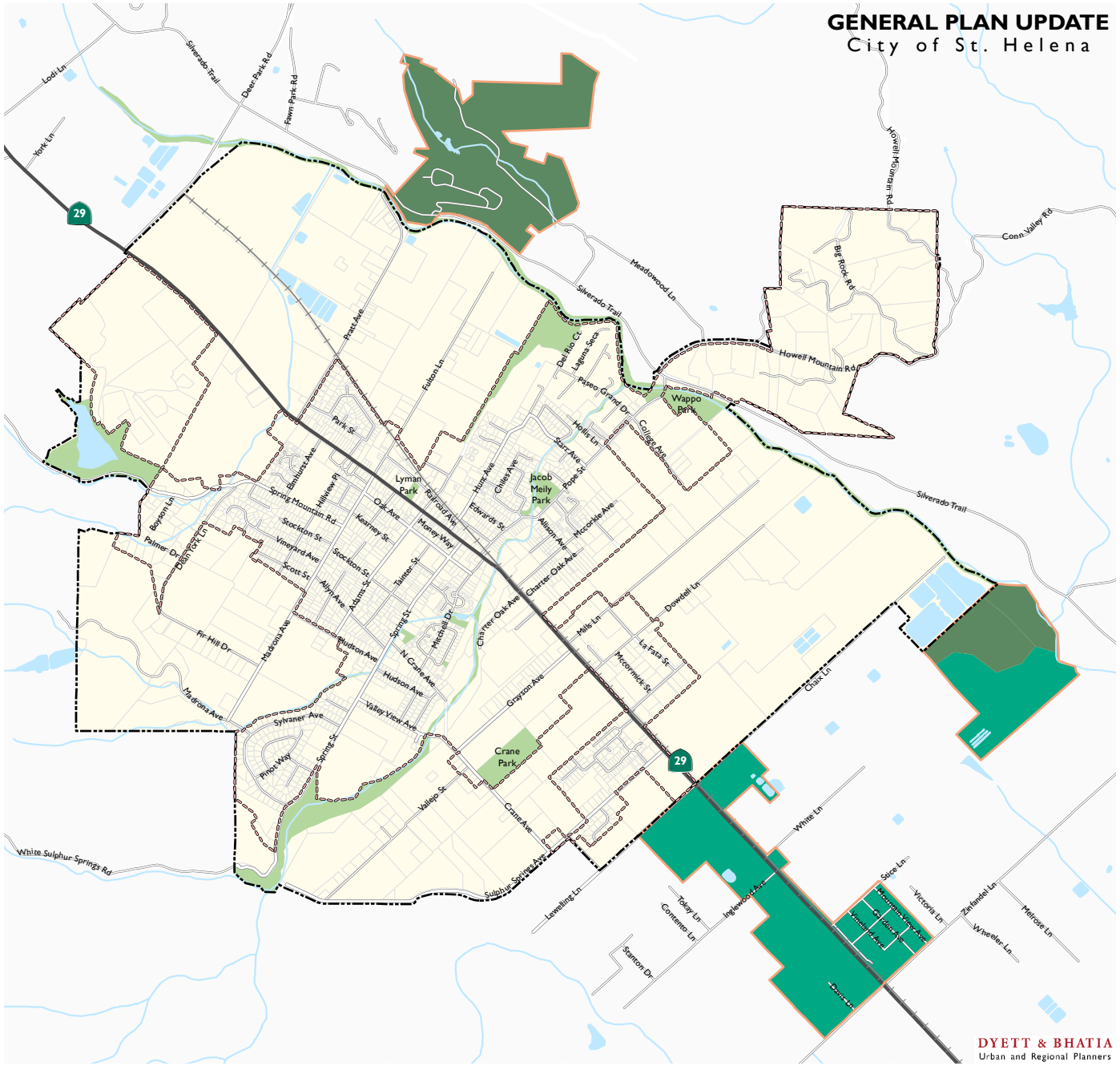
Figure 3.10-2

Napa County General Plan Designations

County General Plan

- Agricultural Resource
- Agriculture, Watershed and Open Space

- City of St. Helena
- Parks and Open Space
- Urban Limit Line
- Study Areas



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Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

DYETT & BHATIA
Urban and Regional Planners

Figure 3.11-2

Noise Measurement Locations

- Noise Measurement Locations
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

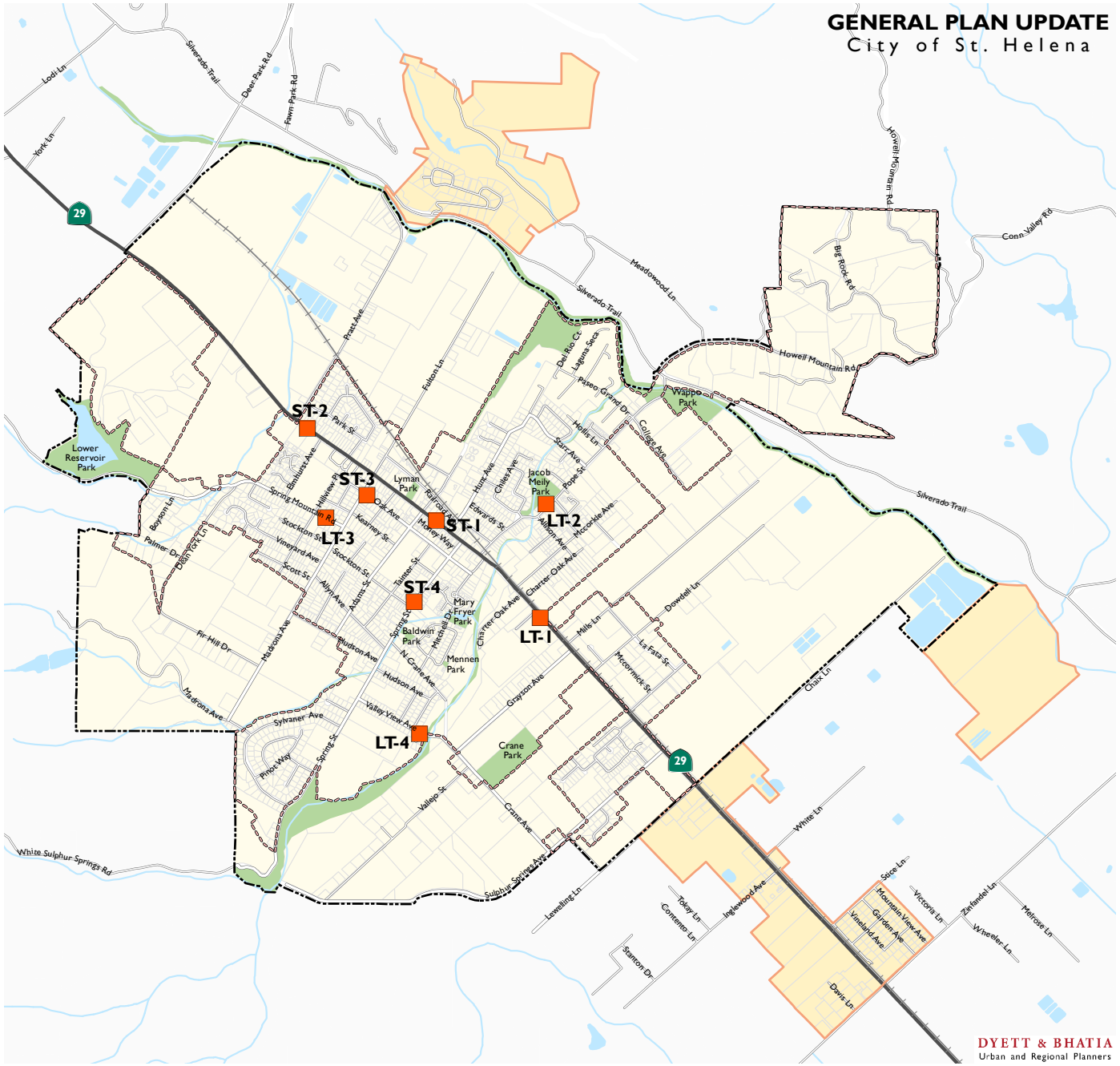
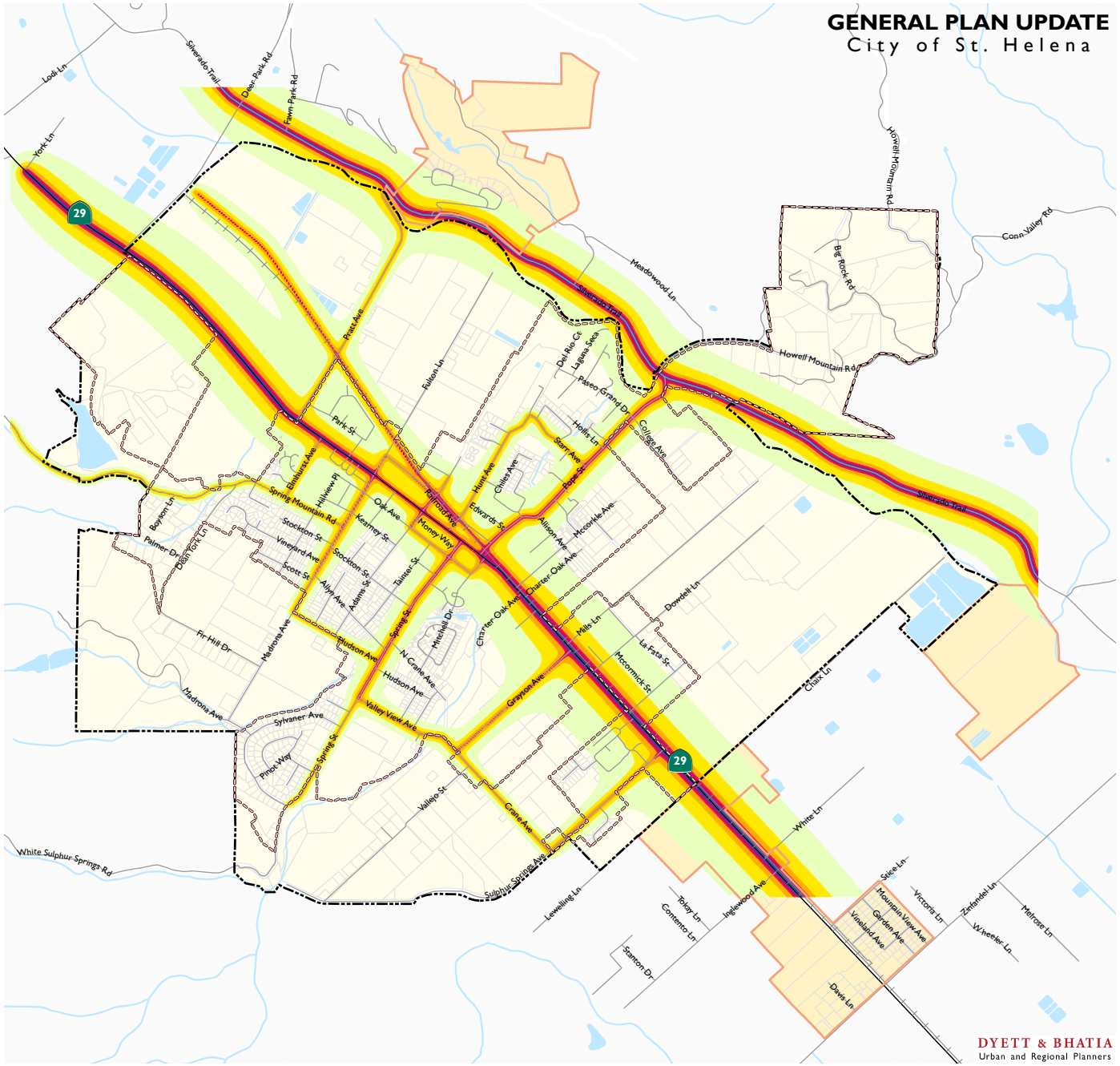

GENERAL PLAN UPDATE
City of St. Helena
ST-1
ST-2
ST-3
ST-4
LT-1
LT-2
LT-3
LT-4
29
Silverado Trail
Howell Mountain Rd
Lower Reservoir Park
Lyman Park
Jacob Meily Park
Mary Fryer Park
Baldwin Park
Mennen Park
Crane Park
Wappo Park
Hudson Ave
Grayson Ave
Valley View Ave
Sulphur Springs Ave
White Sulphur Springs Rd
Charter Oak Ave
Pratt Ave
Fulton Ln
Park St
Oak Ave
Kearney St
Stockton St
Scott St
Adams St
Spring St
Crane Ave
Dowdell Ln
Mills Ln
McCormick St
Chiles Ave
Hunt Ave
Edwards St
Allison Ave
Starr Ave
Hollis Ln
College Ave
Pope St
Paseo Grand Dr
Del Rio Ct
Laguna Seca
Meadowood Ln
Conn Valley Rd
Big Rock Rd
Chiles Valley Rd
Deer Park Rd
Fawn Park Rd
Lodi Ln
York Ln
Bayson Ln
Palmer Dr
Dean Tor Ln
Spring Mountain Rd
Hillview Dr
Elmhurst Ave
Vineyard Ave
Scott St
Madrona Ave
Fir Hill Dr
Sylvaner Ave
Pinot Way
Valley St
Lewelling Ln
Inglewood Ave
Tokay Ln
Corsetto Ln
Santoni Dr
Davis Ln
Gamay Ave
Vineyard Ave
Mountain View Ave
Victoria Ln
Zinfandel Ln
Melrose Ln
Wheeler Ln
Spice Ln
White Ln
Chiles Ln
La Fata St
Taylor St
Mitchell Dr
N Crane Ave
Hudson Ave
Madrona Ave
Sylvaner Ave
Pinot Way
Valley View Ave
Spring St
Valley St
Crane Ave
Sulphur Springs Ave
Lewelling Ln
Tokay Ln
Corsetto Ln
Inglewood Ave

Figure 3.11-3

Projected Noise Contours (2040)

- DNL 55 - 60 dB
- DNL 60 - 65 dB
- DNL 65 - 70 dB
- DNL 70 - 75 dB
- DNL 75 - 80 dB
- Urban Limit Line
- Study Areas
- City of St. Helena



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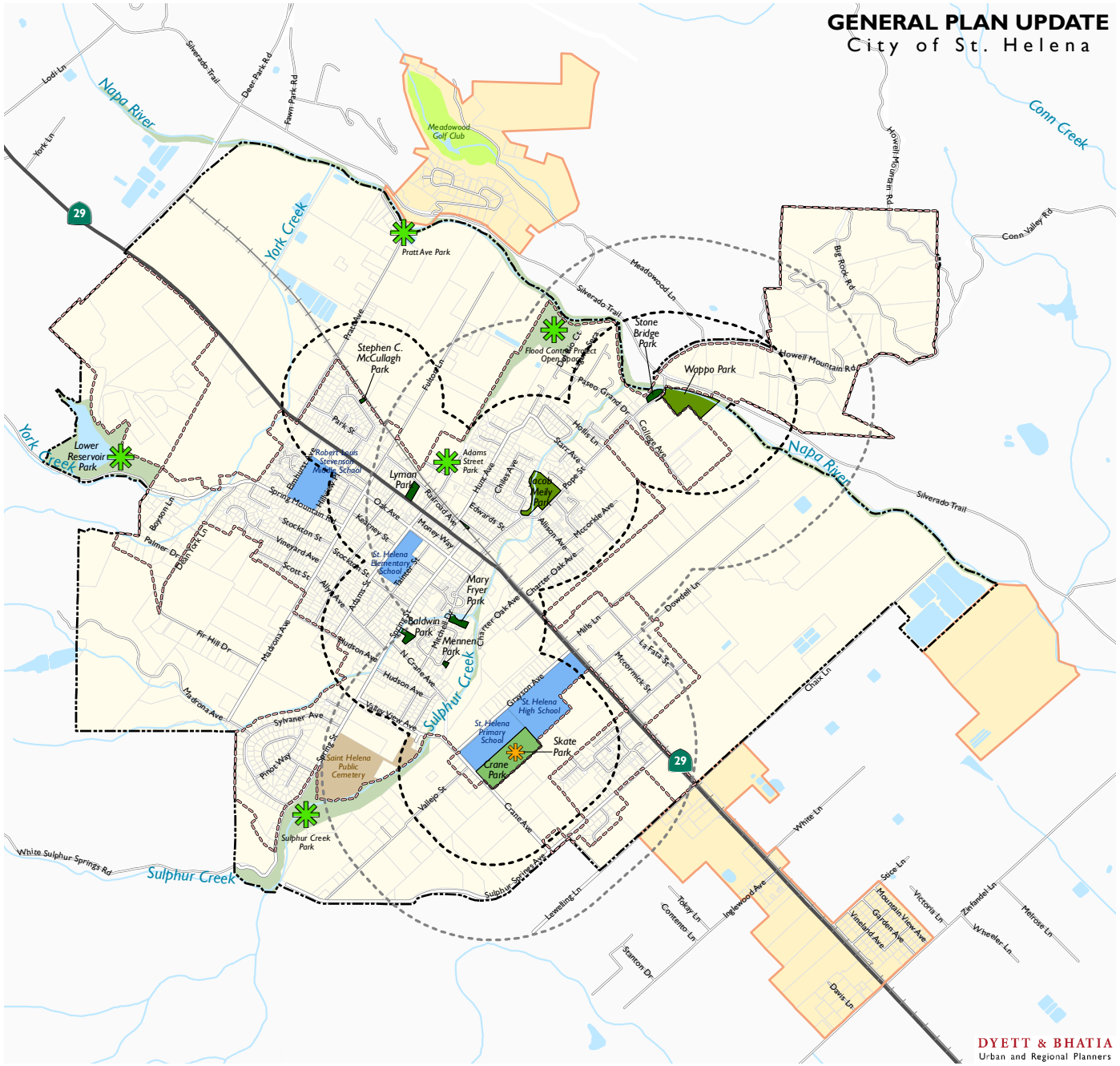
Data Source: Charles M. Salter Associates, Inc, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.12-1

Parks and Recreation Facilities

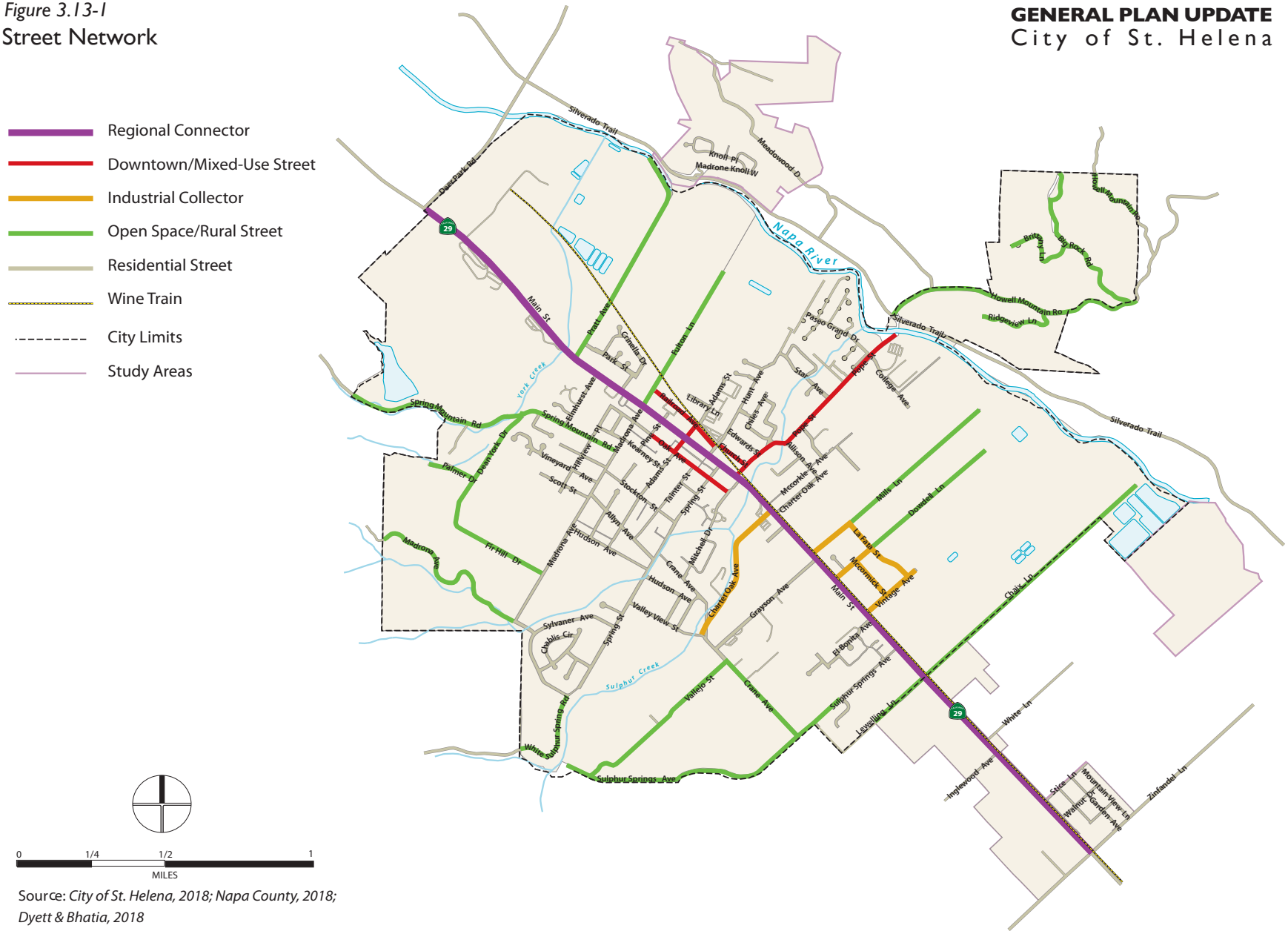
- Mini Park
- Neighborhood Park
- Community Park
- Open Space
- Skate Park
- Potential new park site
- Parks Quarter Mile Service Radius
- Parks Half Mile Service Radius
- Golf Course
- Public Schools
- Cemetery
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.13-1
Street Network

GENERAL PLAN UPDATE
City of St. Helena



Source: *City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018*

Figure 4.1-1

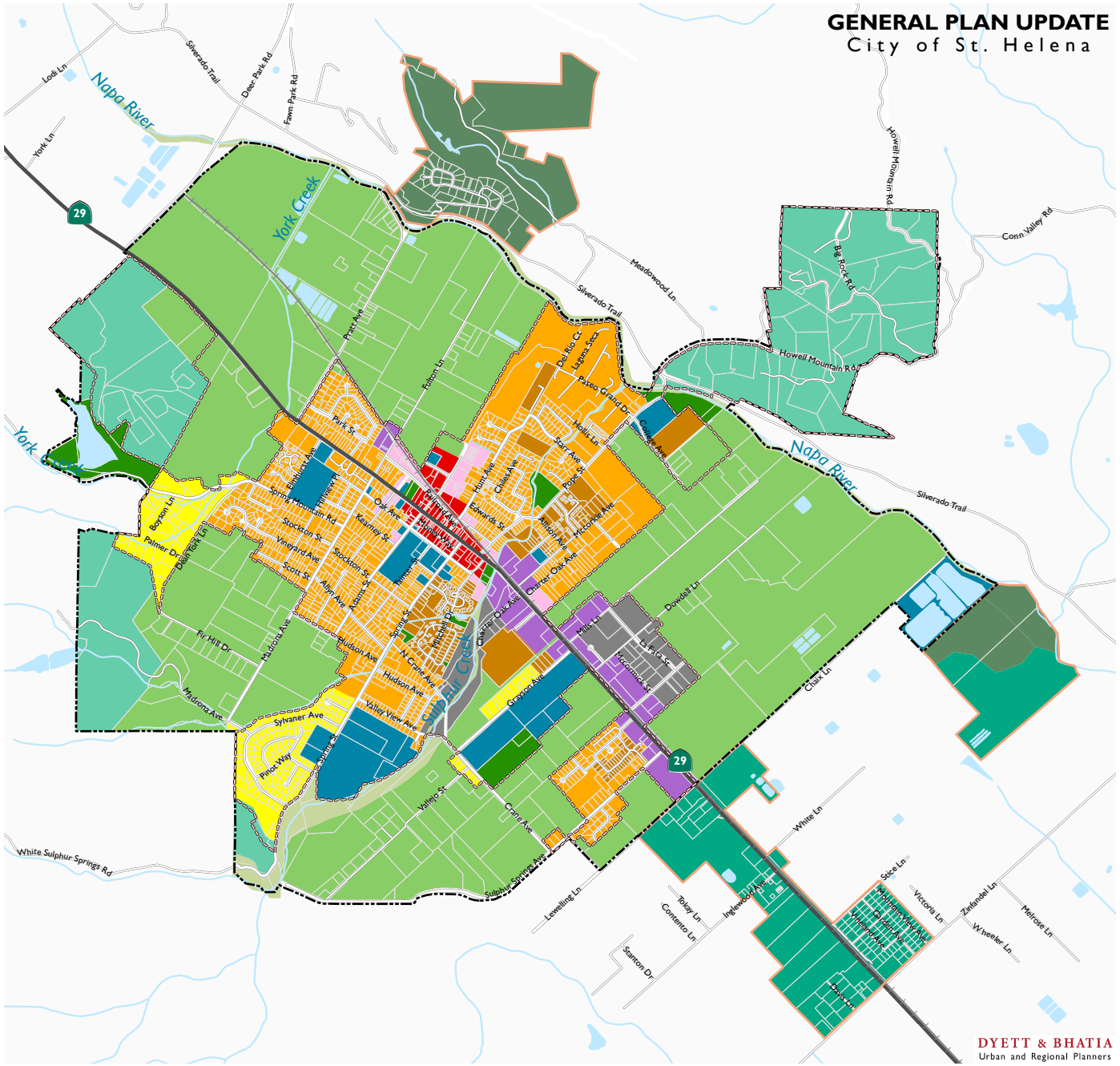
No Project Alternative

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Office
- Service Commercial
- Industrial
- Public & Quasi-Public
- Agriculture
- Parks
- Open Space
- Woodlands & Watershed

Napa County General Plan

- Agricultural Resource
- Agriculture, Watershed and Open Space

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



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Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

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Appendix A

CEQA requires lead agencies to file and distribute public notices regarding the development of the Environmental Impact Report. Appendix A provides evidence of the City of St. Helena's compliance with CEQA Guidelines Sections 15802 and 15085, and includes the Notice of Preparation, Notice of Completion, and Notice of Availability for the 2018 Draft EIR to the St. Helena General Plan Update 2040 published for public review and comment, as well as the Notice of Availability for the 2016 Draft. These documents are provided in support of the response to Comment A2-B-1 from the Local Agency Formation Commission (LAFCO) of Napa County. Appendix A includes the following documents:

1. Ad Proof of 2016 Notice of Availability
2. 2016 Notice of Availability
3. Ad Proof of 2018 Notice of Preparation
4. 2018 Notice of Completion
5. 2018 Notice of Availability.

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Customer Ad Proof

60001656 CITY OF ST HELENA Order Nbr 66571

Publication	**Napa Valley Register**		
Contact	CITY OF ST HELENA	PO Number	
Address 1	1480 MAIN ST	Rate	Legal Open
Address 2		Order Price	371.59
City St Zip	ST HELENA CA 94574	Amount Paid	0.00
Phone	7079672792	Amount Due	371.59
Fax	7079637748		
Section	Legals	Start/End Dates	06/10/2016 - 06/10/2016
SubSection		Insertions	1
Category	901 Public Notices	Size	113
Ad Key	66571-1	Salesperson(s)	CLASSIFIED INSIDE SALES GENERIC
Keywords	PUBLIC NOTICE City of St. Hele	Taken By	Kay Blackburn
Notes			

Ad Proof

PUBLIC NOTICE
City of St. Helena
NOTICE OF AVAILABILITY
Revised Draft Environmental Impact Report (RDEIR)

General Plan Update Revised Draft Environmental Impact Report
SCH # 2010042001
To: Public Agencies and Concerned Citizens/Interested Parties
From:City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

Notice: Notice is hereby given that the City of St. Helena ("City"), the Lead Agency under the California Environmental Quality Act (CEQA), will receive public comment and recommendations on a Revised Draft Environmental Impact Report (RDEIR) prepared for the General Plan Update. The review period commences on Thursday, **June 9, 2016**, and ends at 5:00 pm on Monday, **July 25, 2016**. All comments regarding the RDEIR must be received by this ending date /time.

Project Description: General Plan Update. The proposed project includes a comprehensive update to the current General Plan, adopted in 1993. The General Plan includes goals and policies to guide the physical development of the community from the date of adoption through the year 2035. The General Plan Update contains the following 11 elements: Land Use and Growth Management; Economic Sustainability; Public Facilities and Services; Circulation; Historic Resources; Community Design; Open Space and Conservation; Public Health, Safety and Noise; Climate Change; Parks and Recreation; and Arts, Culture and Entertainment. If approved, the General Plan Update could result in a population increase of up to 632 persons, 260 new

Customer Ad Proof

60001656 CITY OF ST HELENA **Order Nbr 66571**

housing units, approximately 300,000 new square feet of commercial space and approximately 875 new jobs.

Project Location: The General Plan EIR includes all properties within the City of St Helena and associated Sphere of Influence, approximately 3,024 acres of land in Napa County California.

Potential Environmental Impacts: The following potentially significant environmental effects are addressed in the RDEIR: land use and planning, agricultural and forestry resources, transportation and traffic, air quality, noise, aesthetics, biological resources, cultural resources, energy, greenhouse gas emissions, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, population and housing, public services, recreation, and utilities and service systems.

Public Review Period: The public review period for the RDEIR extends Thursday, **June 9, 2016**, and ends at 5:00 pm on Monday, **July 25, 2016.**

Location Where Document Can Be Reviewed: The City has prepared a RDEIR for the subject project pursuant to the California Environmental Quality Act. The RDEIR is available for public review at: 1) the St. Helena Public Library, 1492 Library Lane, St. Helena, CA 94574; 2) St. Helena Planning Department, 1480 Main Street, St. Helena, CA 94574 and 3) on the City's website at www.ci.st-helena.ca.us. All documents referenced in the RDEIR are available for public review at the St. Helena Planning Department, 1480 Main Street, St. Helena, CA 94574.

Comments on the Draft Environmental Impact Report must be received, in writing, by the end of the review period, July 25, 2016 at 5:00 p.m.
Submit comments to Noah Housh, Planning Director, City of St. Helena, Planning and Community Improvement Department
1480 Main Street, St. Helena, California 94574
or nhoush@cityofsthelena.org
Phone: (707) 967-2792

6/10 #66571

POSTED
POSTED: 06/09/2016 BY: KD
COMPLETED: _____ BY: ___
NAPA COUNTY CLERK

City of St. Helena
NOTICE OF AVAILABILITY

Revised Draft Environmental Impact Report (RDEIR)

General Plan Update Revised Draft Environmental Impact Report
SCH # 2010042001

To: Public Agencies and Concerned Citizens/Interested Parties

From: City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

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1480 Main Street, St. Helena, California 94574
or nhoush@cityofsthelena.org

Phone: (707) 967-2792

NOTICE OF PREPARATION

Program Environmental Impact Report
City of St. Helena General Plan Update

Date March 29, 2018
To Reviewing Agencies, Interested Parties, and Organizations
Subject Notice of Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update and Scheduling of a Scoping Meeting on April 17, 2018

The City of St. Helena (City) is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) will be necessary to evaluate environmental impacts of this Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City will be the Lead Agency and will prepare the EIR. Attached are the Project description, location maps, and preliminary identification of the potential environmental issues to be explored.

The City is requesting comments and guidance on the scope and content of the EIR from responsible and trustee agencies, interested public agencies, organizations, and the general public (CEQA Guidelines §15082). If your agency is a responsible agency as defined by Section 15381 of the CEQA Guidelines, your agency may use the environmental documents prepared by the City when considering permits or approvals for action regarding the Project.

Potential Environmental Impacts to Be Considered

The EIR will evaluate potentially significant environmental impacts associated with the adoption and implementation of the Proposed Plan. Consistent with the State CEQA Guidelines (Appendix G), the following environmental resource categories will be analyzed in relation to the Project:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Energy, Greenhouse Gas Emissions, & Climate Change
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Cultural and Tribal Resources
- Hydrology and Water Quality
- Land Use, Population, and Housing
- Mineral Resources
- Noise
- Parks, Public Services & Recreation
- Public Utilities
- Transportation

All of the resource categories listed above will be considered in the EIR; however, given the local context of St. Helena, the following issues will be central to the environmental analysis:

- Agricultural resources, due to the agricultural characteristics and presence of prime and important farmland in and around the Planning Area;
- Biological resources, due to the presence of open space areas that could support habitats and wildlife corridors;
- Hydrology and water quality, due to the presence of waterways such as the Napa River, Sulphur Creek, and York Creek;
- Traffic, due to the reliance on SR 29 as a main thoroughfare and regional connection; and
- Public utilities, due to the importance of stable and secure water supply over the course of the planning process.

Public Scoping Period: April 2 to May 1, 2018

Lead Agency Contact:

Noah Housh, Director
Planning and Community Improvement Department
City of St Helena, 1480 Main Street, St. Helena, CA 94574
NHoush@cityofsthelena.org

A scoping meeting will be conducted as part of the regularly scheduled Planning Commission meeting at 6:00 p.m. on **April 17, 2018** to collect oral comments from agencies and the public. If you have questions regarding this NOP or the scoping meeting, please contact Noah Housh at (707) 968-2659 or via e-mail NHoush@cityofsthelena.org.

PROOF DO NOT REPRODUCE

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: City of St. Helena General Plan 2040

Lead Agency: City of St. Helena — Contact Person: Noah Housh
Mailing Address: 1480 Main St — Phone: 707-968-2659
City: St. Helena — Zip: 94574 — County: Napa

Project Location: County: Napa — City/Nearest Community: St. Helena
Cross Streets: Various — Zip Code: Various
Longitude/Latitude (degrees, minutes and seconds): 38 ° 30 ' 8.78 " N / 122 ° 28 ' 2.42 " W Total Acres:
Assessor's Parcel No.: Citywide — Section: — Twp.: — Range: — Base:
Within 2 Miles: State Hwy #: 29 — Waterways: Napa River
Airports: — Railways: Wine Train — Schools: St Helena School District

Document Type:

CEQA: ☐ NOP ☒ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec Other:
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☒ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units — Acres
☐ Office: Sq.ft. — Acres — Employees
☐ Commercial: Sq.ft. — Acres — Employees
☐ Industrial: Sq.ft. — Acres — Employees
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type — MGD
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type — MW
☐ Waste Treatment: Type — MGD
☐ Hazardous Waste: Type
☒ Other: General Plan Update

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☒ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☒ Forest Land/Fire Hazard
☒ Geologic/Seismic
☒ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☒ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other:

Present Land Use/Zoning/General Plan Designation:

Various

Project Description: *(please use a separate page if necessary)*

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

_____ Air Resources Board	_____ Office of Historic Preservation
_____ Boating & Waterways, Department of	_____ Office of Public School Construction
_____ California Emergency Management Agency	_____ Parks & Recreation, Department of
_____ California Highway Patrol	_____ Pesticide Regulation, Department of
_____ Caltrans District # _____	_____ Public Utilities Commission
_____ Caltrans Division of Aeronautics	_____ Regional WQCB # _____
_____ Caltrans Planning	_____ Resources Agency
_____ Central Valley Flood Protection Board	_____ Resources Recycling and Recovery, Department of
_____ Coachella Valley Mtns. Conservancy	_____ S.F. Bay Conservation & Development Comm.
_____ Coastal Commission	_____ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
_____ Colorado River Board	_____ San Joaquin River Conservancy
_____ Conservation, Department of	_____ Santa Monica Mtns. Conservancy
_____ Corrections, Department of	_____ State Lands Commission
_____ Delta Protection Commission	_____ SWRCB: Clean Water Grants
_____ Education, Department of	_____ SWRCB: Water Quality
_____ Energy Commission	_____ SWRCB: Water Rights
_____ Fish & Game Region # _____	_____ Tahoe Regional Planning Agency
_____ Food & Agriculture, Department of	_____ Toxic Substances Control, Department of
_____ Forestry and Fire Protection, Department of	_____ Water Resources, Department of
_____ General Services, Department of	
_____ Health Services, Department of	_____ Other: _____
_____ Housing & Community Development	_____ Other: _____
_____ Native American Heritage Commission	

Local Public Review Period (to be filled in by lead agency)

Starting Date 10/23/18 Ending Date 01/02/2019

Lead Agency (Complete if applicable):

Consulting Firm: Dyett & Bhatia
Address: 1330 Broadway
City/State/Zip: Oakland, CA 94612
Contact: Rajeev Bhatia
Phone: 415-956-4300

Applicant: City of St. Helena
Address: 1480 Main Street
City/State/Zip: St. Helena, CA 94574
Phone: 707-968-2659

Signature of Lead Agency Representative: _____ **Date:** 10/19/18

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Revised 2010

Notice of Availability

Draft Environmental Impact Report

for the Proposed City of St. Helena 2040 General Plan Update

State Clearinghouse Number 2010042001

To: Responsible Agencies, Interested Organizations and Members of the Public

The City of St Helena is the Lead Agency for a draft Environmental Impact Report (EIR) prepared to analyze the environmental impacts of the proposed 2040 St. Helena General Plan. This plan will establish policies governing all elements of City governmental operations including land use, utilities, public safety, recreation, the economy and the environment, citywide. Further, this plan analyzes three study areas for potential future expansion of the City's Sphere of Influence. The 2040 General Plan will guide all future City decisions and actions through the horizon year of 2040.

This Draft EIR is prepared pursuant to the California Environmental Quality Act (CEQA) and the City's established policies and procedures regarding implementation of CEQA. It follows a Notice of Preparation (NOP) and public scoping period that extended from April 1, 2018, to May 1, 2018. The EIR includes a description of the proposed project and its environmental setting, along with analysis of how the project would potentially impact the environment. Where impacts would be potentially significant, mitigation measures are identified to avoid or reduce those impacts. In addition, the EIR contains an analysis of several project alternatives, cumulative impacts and other considerations required under CEQA. The draft EIR identifies significant and unavoidable impacts associated with development under the 2040 General Plan in the following resource areas: Greenhouse Gas Emissions, Air Quality, Agricultural Resources and Transportation.

This Draft EIR will be circulated for a 72-day public review and comment period for responsible agencies as well as other interested agencies and the general public. This comment period begins on October 23, 2018 and will end on January 2, 2019. A public hearing to receive oral comments will be held with the Planning Commission at 6:00 PM on December 4, 2018, at Vintage Hall, 465 Main St, St Helena, CA 94574.

Please provide written comments to Noah Housh, Planning Director, City of St. Helena, 1480 Main St, St. Helena, CA 94574 by 5:00 PM on January 2, 2019, or by email at nhoush@cityofsthelena.org.

The Final EIR, Mitigation Monitoring and Reporting Program and Response to Comments, will then be submitted to the Planning Commission at a Public Hearing for review and

recommendation to the City Council, who has the final authority to adopt the documents. The final decision with the City Council is anticipated to occur in late winter/early spring 2019.

Drafty EIR Availability

An electronic version of the draft EIR is available on-line at:

http://www.cityofsthelena.org/planning/page/2040-general-plan-update

Draft EIR hard copies are available for review at the following locations:

St Helena City Hall 1480 Main Street St. Helena, CA 94574	St. Helena Library 1492 Library Lane St. Helena, CA 94574

Request for draft EIR digital or paper copies may be made to: nhoush@cityofsthelena.org or by calling 707-968-2659. There are a limited number of paper copies available.

Opportunities for Commenting

Please send (and postmark) any comments on the 2040 General Plan EIR by January 2, 2019, to be considered and responded to in the Final EIR. Comment should be addressed to:

Noah Housh
Planning Director
City of St Helena
1480 Main St.
St. Helena, CA 94574

You may also send comment via email to: nhoush@cityofsthelena.org. In addition, comments may be provided orally at the public hearing to be held on December 4, 2018, at 6:00 pm at the following address:

Vintage Hall
465 Main St.
St. Helena, CA 94574

The City of St. Helena appreciates your interest in this project and welcomes your involvement in the environmental review process for the 2040 General Plan.

Sincerely,

Noah Housh
Planning Director
City of St. Helena

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ST. HELENA
CALIFORNIA

Mitigation Monitoring & Reporting Program

for the

2040 ST. HELENA GENERAL PLAN UPDATE
ENVIRONMENTAL IMPACT REPORT

SCH No. 2010042001

City of St. Helena

March 2019

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1 Purpose

State of California Public Resources Code Section 21081.6(a)(1) requires a lead or responsible agency that approves or carries out a project where an Environmental Impact Report (EIR) has identified significant environmental effects to adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The City of St. Helena (the "City") is the lead agency for the EIR prepared for the City of St. Helena General Plan Update (SCH No. 2010042001), hereafter referred to as "Proposed Plan," and therefore is responsible for the adoption and implementation of the required mitigation monitoring and reporting program. An EIR has been prepared for the Proposed Plan that addresses potential environmental impacts and, where appropriate, recommends measures to mitigate these impacts.

The Mitigation Monitoring and Reporting Program (MMRP) has been prepared in conformance with Public Resources Code Section 21081.6(a)(1). It is the intent of this program to:

1. Verify satisfaction of the required mitigation measures of the EIR;
2. Provide a methodology to document implementation of the required mitigation;
3. Provide a record of the monitoring program;
4. Identify monitoring responsibility;
5. Establish administrative procedures for the clearance of mitigation measures;
6. Establish the frequency and duration of monitoring; and
7. Utilize existing review processes wherever feasible.

The MMRP describes the procedures that will be used to implement the mitigation measures adopted in connection with the approval of the Proposed Plan and the methods of monitoring such actions. A monitoring program is necessary only for impacts which would be significant if not mitigated.

If, during the course of project implementation, any of the mitigation measures identified cannot be successfully implemented, the City shall immediately inform any affected responsible agencies. The City, in conjunction with any affected responsible agencies, will then determine if modification to the project is required, and/or whether alternative mitigation is appropriate.

The following consists of a monitoring program table noting the responsible entity for mitigation monitoring, the timing, and a list of all project-related mitigation measures.

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2 Mitigation Monitoring and Reporting Plan

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Air Quality						
Construction associated with implementation of the Proposed Plan would create new sources of fugitive PM_{10} and $PM_{2.5}$ dust emissions, resulting in short-term impacts to ambient air quality.	**AQ-1:** Construction projects in the City of St. Helena shall implement BMPs to reduce fugitive dust emissions, such as: • Watering all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) three times per day using recycled water. • Covering all haul trucks transporting soil, sand, or other loose material. • Removing all visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • Limiting all vehicle speeds on unpaved roads to 15 mph. • Completing all roadways, driveways, and sidewalks to be paved as soon as possible. Laying building pads soon as possible after grading unless seeding or soil binders are used.	Project applicant shall require fugitive dust control BMPs in construction specifications. Planning and Community Improvement Department, Building Division and Public Works Department shall inspect the worksite regularly to ensure the BMPs are implemented.	During construction	Construction contractor; City of St. Helena Planning and Community Improvement Department, Building Division; City of St. Helena Public Works Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
	• Minimizing idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • Maintaining and properly tuning all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified automotive mechanic and determined to be running in proper working condition prior to operation at the beginning of each project. • Staging construction equipment as far as possible from existing sensitive receptors (for example, away from the southeast property line and surrounding residences). • Posting a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations. • Where warranted, the project sponsors shall incorporate the following language					

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
	into construction specifications if significant risk is anticipated based on design level construction schedule, duration and concurrent construction activities: ○ Powering portable equipment by electricity if available or if electricity is not available, using propane or natural gas if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. ○ Ensuring that all mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days continuously or 20 hours cumulative meets, at a minimum, U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent and be equipped with diesel particulate matter filters that meet CARB-certified Level 2 or 3 Diesel Particulate Filters. Alternatively-fueled equipment (i.e., non-diesel) would meet this requirement.					
Construction associated with implementation of the Proposed Plan would create new sources of ROG	**AQ-2:** Require that applicants proposing development of projects within the City of St. Helena require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC	Project applicants shall incorporate VOC content requirements into construction specifications and	Prior to issuance of construction permit	City of St. Helena Planning and Community Improvement Department,		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
emissions and would violate air quality standards.	coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the requirement for the use of low-VOC coatings to the City of St. Helena prior to the start of construction.	submit to City for review. City to review specifications to confirm requirement.		Building Division		
Implementation of the Proposed Plan could create new point-source air quality impacts.	**AQ-3:** Require all development applications with the potential to create point-source air quality impacts be referred to the Bay Area Air Quality Management District (BAAQMD) for review and comment to ensure compliance with BAAQMD requirements prior to approval of the project.	Project applicants proposing development of new point sources, such as dry cleaners or gas stations, shall apply and obtain for BAAQMD stationary source permits in compliance with BAAQMD Regulation 2. City to confirm receipt of permits.	Prior to issuance of construction permit	BAAQMD; City of St. Helena Planning and Community Improvement Department		
Implementation of the Proposed Plan could expose sensitive receptors to stationary sources of toxic air contaminants.	**AQ-4:** Require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses, or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures.	Project applicant shall submit drawings that demonstrate setback requirements are met or site-specific construction health risk assessment to City for review.	Prior to discretionary project approval	City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Implementation of the Proposed Plan could expose sensitive receptors to mobile sources of toxic air contaminants and associated health risks.	**AQ-5:** To protect sensitive receptors require discretionary projects within 500 feet of Highway 29, Silverado Trail or the Rail Corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels.	Project applicant shall prepare and submit site-specific mobile source air contaminant health risk assessment to City for review.	Prior to discretionary project approval	City of St. Helena Planning and Community Improvement Department		
Development of new projects associated with implementation of the Proposed Plan would expose sensitive receptors to project-level and cumulative health risks.	**AQ-6:** All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by BAAQMD, shall prepare a site-specific screening level construction health risk assessment (HRA) taking into account both project-level and cumulative health risks (including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable.	Project applicant shall prepare and submit site-specific construction health risk assessment to City for review.	Prior to discretionary project approval	City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Energy, Greenhouse Gases, and Climate Change						
Implementation of the Proposed Plan would generate greenhouse gases that could have a significant impact on the environment and conflict with the GHG emissions reduction trajectory for 2050 articulated under EO S-3-05, AB 32, and the 2017 CARB Scoping Plan.	**GHG-1:** The City of St. Helena shall adopt and begin to implement a Climate Action Plan within a goal of 18 months, but no later than 36 months, of adopting the Proposed Plan update to address the GHG reduction goals of Executive Order B-30-15 and Executive Order S-03-05 for GHG sectors that the City has direct or indirect jurisdictional control over. The Climate Action Plan shall include a community inventory of GHG emission sources, and quantifiable GHG emissions reduction targets for 2030 and 2050, and an interim target for the General Plan buildout year 2040, that are consistent with the statewide GHG reduction targets. The City shall monitor progress toward its GHG emissions reduction goals and prepare reports every five years detailing that progress.	Climate Action Plan adoption	Within 18 months, but no later than 36 months, of adoption of the Proposed Plan	City of St. Helena Planning and Community Improvement Department		
Hydrology and Water Quality						
Development associated with implementation of the Proposed Plan could place housing within a 100-year flood hazard area, and would constitute a significant risk and	**HYDRO-1:** Any proposed development or redevelopment on land designated as regulatory floodway on current FEMA maps shall, prior to issuance of a construction permit, obtain and submit to the City a Letter of Map Revision (LOMR) from FEMA, demonstrating that a hydrologic and hydraulic analysis showed that grading modifications were performed such that the proposed development would no longer be within the floodway.	Project applicant shall obtain and submit to the City a Letter of Map Revision from FEMA	Prior to discretionary project approval	City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
conflict with FEMA standards.	These modifications shall be completed without raising the base flood level or impacting other properties.					
Noise						
Construction associated with implementation of the Proposed Plan would temporarily expose future and existing development to excessive groundborne vibration. All construction equipment would generate vibration levels greater than the distinctly perceptible level of 0.04 PPV in/sec at a distance of 25 of sensitive land uses. At a distance of 300 feet, pile driving activities would also result in significant vibration impacts to sensitive land uses.	**NO-1:** Where vibration impacts have the potential to cause structural damage or distinctly perceptible human response, require a vibration study, prepared by a qualified vibration consultant. The study should include a site-specific engineering assessment of potential vibration impacts to structures and sensitive receptors from construction activities and specify a mitigation plan to minimize the impacts using all reasonable and feasible means available. The mitigation plan should include a procedure for establishing threshold and limiting vibration values for potentially affected structures, based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations and a commitment to develop a vibration monitoring plan during the engineering phase and to implement a compliance monitoring program during construction.	Project applicant shall submit the required vibration study to the City	Prior to issuance of construction permit	City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Transportation and Traffic						
Implementation of the Proposed Plan at buildout in 2040 would impact weekday PM peak hour intersection operations and delay at the Main Street and Pratt Avenue intersection. The Peak Hour Signal Warrant would be met at this intersection for the weekday PM peak hour at buildout in 2040.	**TR-1:** When the rural signal warrant is met, install a traffic signal at the Main Street/Pratt Avenue intersection.	Monitor conditions through applicant traffic studies as development projects are proposed. Require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		
Implementation of the Proposed Plan at buildout in 2040 would impact weekday PM peak hour intersection operations and delay at the Main Street and Elmhurst Avenue intersection. The Peak Hour Signal Warrant would be met at this	**TR-2:** When the rural signal warrant is met, restripe the Main Street/Elmhurst Avenue intersection to include the following: • Northbound approach: 1 left turn lane, 1 through lane • Southbound approach: 1 two-way left turn lane, 1 through-right turn shared lane • Eastbound approach: 1 left turn lane, 1 right turn lane	Monitor conditions through applicant traffic studies as development projects are proposed. City shall require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
intersection for the weekday PM peak hour at buildout in 2040.						
Implementation of the Proposed Plan at buildout in 2040 would impact weekday AM peak hour, weekday PM peak hour, and weekend midday peak hour intersection operations at the Main Street and Pope Street/ Mitchell Drive Intersection.	**TR-3:** Main Street/Pope Street-Mitchell Drive: Construct one or more of the planned roadway extensions noted in General Plan Figure 5.2. Note that, per the General Plan, additional study of the connection(s) would be required, and the City Council would need to approve the connection at that time. Candidate extensions that may directly reduce the impacts at Main Street/Pope Street-Mitchell Drive include: • Connection 2A: College Avenue extension to Mills Lane (may require realignment of Mills Lane to meet Main Street/Grayson Avenue intersection) • Connection 3: Oak Avenue extension from Mitchell Drive to Grayson Avenue • Connection 2B, Connection 2C, Connection 5B, or a combination of Connections 1, 4 and 5A may provide congestion relief to Main Street/Pope Street-Mitchell Drive, but these improvements have additional considerations related to neighborhood traffic volumes and costs related to crossings of the Napa River.	Monitor conditions through applicant traffic studies as development projects are proposed. City shall require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Implementation of the Proposed Plan at buildout in 2040 would impact weekday PM peak hour intersection operations and delay at the Main Street and Sulphur Springs Avenue intersection. The Peak Hour Signal Warrant would be met for this intersection for the weekday PM peak hour at buildout in 2040.	**TR-4:** When the rural signal warrant is met, install a traffic signal at the Main Street/Sulphur Springs Avenue intersection.	Monitor conditions through applicant traffic studies as development projects are proposed. City shall require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		
Implementation of the Proposed Plan at buildout in 2040 would impact weekday AM peak hour, weekday PM peak hour, and weekend midday peak hour intersection operations and delay at the Silverado Trail and Pope Street intersection. The Peak Hour Signal	**TR-5:** When the rural signal warrant is met, install a traffic signal at the Silverado Trail/Pope Street intersection. The nearby intersection of Silverado Trail/Howell Mountain Road may require signalization as well because the two intersections are closely spaced.	Monitor conditions through applicant traffic studies as development projects are proposed. City shall require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		

Impact	*Mitigation Measure*	*Method of Verification*	*Timing of Verification*	*Responsibility for Verification*	*Verification Date*	*Complete Initial*
Warrant would be met at this intersection for the weekday AM, weekday PM, and weekend midday peak hours at buildout in 2040.						
Implementation of the Proposed Plan at buildout in 2040 would impede Main Street traffic flow at the Main Street and Grayson Avenue and Main Street and Mills Lane intersections due to queues at these intersections.	**TR-6:** Main Street/Grayson Avenue and Main Street/Mills Lane: Realign Mills Lane to form a four lane approach to the existing Main Street/Grayson Avenue intersection.	Monitor conditions through City's ongoing traffic signal maintenance program or through applicant traffic studies as development projects are proposed. Through this monitoring effort, new traffic counts and field observations should be collected to verify LOS at the intersection and compare to the City's LOS standards. Mitigation measure shall be implemented when operations are found to be unacceptable relative to City's standards. City shall require payments of Transportation Impact Fees as applicable.	Ongoing	City of St. Helena Public Works Department; City of St. Helena Planning and Community Improvement Department		

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From:	Jacqueline Hilger-Rolfe
To:	Noah Housh
Cc:	Tina Perriono; dlwightman1@att.net; gcampagne3@gmail.com
Subject:	Church Street city proposal
Date:	Tuesday, March 12, 2019 12:26:08 PM

Dear Noah;

I received the notification of proposed plans for rezoning. Many owners on Church street are deeply upset.

Why is the city proposing parking on a residential street? Many of us are spending lots of money on improving our homes on Church street and plan to retire in St. Helena.

It would be a detriment to our town to have tourists from the wine train viewing parking instead of historic homes. Church street is their first introduction to downtown Main Street. The city should be supporting beautification efforts on Church street not asphalt, increased traffic, and unhealthy emissions.

Carly Simon Quote " they paved paradise and put up a parking lot"

I can't imagine more parking needed in this area. There is parking behind all the businesses all the way up Railroad not to mention the huge parking space in the Safeway lot and up and down Hunt.

We appreciate any clarity around this proposal. It seems unfair as this zoning plan has been in discussion for a decade and Church street has never been a topic of discussion to my knowledge.

I along with many neighbors will be attending the March 19th City meeting.

Jacqueline Hilger-Rolfe PhD

From: Noah Housh
To: Noah Housh
Subject: FW: Church Street city proposal
Date: Tuesday, March 12, 2019 2:37:00 PM
Attachments: image001.png

General Plan Public Comment

NOAH HOUSH
PLANNING & COMMUNITY IMPROVEMENT DIRECTOR
City of St. Helena | Planning & Community Improvement Department
1480 Main Street | St. Helena, CA 94574
Direct: (707) 968-2659 | NHoush@cityofsthelena.org | http://cityofsthelena.org/planning

From: Tina Perrino [mailto:tina.perrino@yahoo.com]
Sent: Tuesday, March 12, 2019 2:05 PM
To: Jacqueline Hilger-Rolfe; Noah Housh
Cc: dlwightman1@att.net; gcampagne3@gmail.com
Subject: Re: Church Street city proposal

Noah- thank you for taking my call this afternoon. As I expressed to you, I'm deeply concerned with the potential outcome of this zoning proposal. I purchased my home at 1152 Church St as a Retirement home and have invested heavily.

While I am fully supportive of beautification/upgrading efforts for the City, including Church St, I do not consider a parking lot in line with that effort. I will also review the Disclosures that accompanied my purchase agreement.

As discussed, I will review the Agenda & Meeting materials thoroughly and connect with you this week. I will reach out to my neighbor Jacqueline to discuss/coordinate.

Thanks, Tina

Tina Perrino
415-505-8422
Tina.perrino@yahoo.com

Sent from my iPhone

Data Sources: City of St. Helena, 2018; Napa County, 2018; FEMA, 2018; Dyett & Bhatia, 2018; Mead & Hunt, 2019

- Floodwall
- Levee
- Railroads
- Stream
- Water Features
- Urban Limit Line
- City of St. Helena
- Approximate Levee Failure Inundation Area

This figure is for informational purposes only and is based on a conservative delineation of the inundation area for a 500-year flood event and levee failure. The approximate levee failure inundation area represents an event above and beyond the standard levels of protection for levee design in California and shall in no way replace, supersede or modify the approved Federal Emergency Management Agency's Flood Insurance Rate Map for the City of St. Helena.

City of St. Helena Mead & Hunt DYETT & BHATIA Urban and Regional Planners

Comment Letter A1

State of California • Natural Resources Agency
Department of Conservation
Division of Land Resource Protection
801 K Street • MS 14-15
Sacramento, CA 95814
(916) 324-0850 • FAX (916) 327-3430

Edmund G. Brown Jr., *Governor*
Clayton Haas, *Acting Director*

November 7, 2018

A1-1

VIA EMAIL: NHOUSH@CITYOFSTHELENA.ORG
Mr. Noah Housh, Director
City of St. Helena
Planning and Community Department
1480 Main Street
St. Helena, CA 94574

Dear Mr. Housh:

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE ST. HELENA GENERAL PLAN UPDATE 2040, SCH# 2010042001

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft Environmental Impact Report for the St. Helena General Plan Update (Project). The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The proposed project consists of an update of the City's General Plan. The General Plan is a long-term policy document that establishes direction to guide future land use decisions, a framework to ensure the character and quality of development desired by the community, and the processes by which development and land use changes will take place. The General Plan is used by City staff to review development proposals to ensure that subsequent projects align with the community's vision. The Planning Commission and City Council use the General Plan to guide decision-making that would impact the city's physical environment.

Department Comments

A1-2

Although direct conversion of agricultural land is often an unavoidable impact under CEQA analysis, mitigation measures must be considered. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation under CEQA. Rather, the criterion is feasible mitigation that lessens a project's impacts.

All mitigation measures that are potentially feasible should be considered. A measure brought to the attention of the Lead Agency should not be left out unless it is infeasible based on its elements. The Department suggests that the City consider the adoption of an agricultural land mitigation program that will effectively mitigate the conversion of agricultural land.

Agricultural conservation easements are an available mitigation tool that the City should consider. The Department highlights easements as a mitigation tool because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because they follow an established rationale similar to that of wildlife habitat mitigation. A1-2

Programs that establish agricultural conservation easements and in-lieu fees for mitigation banking are most effective at conserving comparable quality agricultural land when the easement requirements or fees are determined concurrent with project approval. Should significant time elapse between initial approval and the applicant's receipt of a building or grading permit, conflict may arise over the agricultural quality or value of the land being converted.

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Another source is the Division's California Farmland Conservancy Program (CFCP), which has participated in bringing about conservation easements throughout the State of California involving many California land trusts. Any other feasible mitigation measures should also be considered.

Conclusion

Thank you for giving us the opportunity to comment on the Draft Environmental Impact Report for the St. Helena General Plan Update. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov. A1-3

Sincerely,

Monique Wilber
Conservation Program Support Supervisor

Comment Letter A2-A

From: Freeman, Brendon [mailto:bfreeman@napa.lafco.ca.gov]
Sent: Thursday, December 13, 2018 2:23 PM
To: Noah Housh
Cc: Mark Prestwich
Subject: St Helena Gen Plan DEIR

Good afternoon Noah,

Just want to give you a heads up that LAFCO will submit a comment letter on the City's DEIR by the 1/2/19 deadline. I've authorized Ascent Environmental to prepare the letter and they will call you sometime next week to discuss our respective interests. A2-A-1

LAFCO's core interest is ensuring we can rely on the City's EIR to satisfy our CEQA requirements for any potential sphere expansions involving the three study areas. The letter will also mention that the Cortese-Knox-Hertzberg Act includes a unique definition of "prime agricultural land" (Gov Code Section 56064) that differs from FMMP's "prime farmland", so we will request the DEIR at minimum identify prime ag lands within the study areas. A2-A-2 Finally, we will also request LAFCO be identified as a responsible agency where appropriate, assuming sphere expansions will indeed be pursued. A2-A-3

Please note I'll be out of the office the next two weeks for vacation, but I'll be checking emails. Feel free to email me with any questions, comments, concerns, or otherwise and I'll do my best to reply ASAP. You can also flesh out any issues with Ascent, as I'm heavily deferring to their professional expertise. A2-A-4

Best wishes for a happy holiday season,

Brendon Freeman, Executive Officer
Local Agency Formation Commission of Napa County
1030 Seminary Street, Suite B
Napa, California 94559
Office: (707) 259-8645
Mobile: (707) 363-1783
www.napa.lafco.ca.gov

Comment Letter A2-B

Local Agency Formation Commission of Napa County
Subdivision of the State of California

1030 Seminary Street, Suite B
Napa, California 94559
Phone: (707) 259-8645
Fax: (707) 251-1053
www.napa.lafco.ca.gov

We Manage Local Government Boundaries, Evaluate Municipal Services, and Protect Agriculture

January 2, 2019

A2-B-1

DELIVERED BY E-MAIL

Mr. Noah Housh
City of St. Helena
1480 Main Street
St. Helena, California 94574
NHoush@cityofsthelena.org

SUBJECT: Comments on the City of St. Helena General Plan Update and Draft Environmental Impact Report

Mr. Housh:

On October 23, 2018, the City of St. Helena released the St. Helena General Plan Update 2040 and accompanying Draft Environmental Impact Report (EIR) for public review and comment. Ascent Environmental reviewed both documents for overall adequacy of analysis and sufficiency of evidence, as well as adherence to CEQA requirements for preparation of an EIR. The following comments are provided for consideration.

Napa County Local Agency Formation Commission (Napa LAFCO or Commission) appreciates the opportunity to comment on the St. Helena General Plan Update 2040 (project) and accompanying Draft Environmental Impact Report (EIR). Napa LAFCO will use both final documents in fulfilling its regulatory and planning responsibilities under the authority of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. These duties include, but are not limited to, regulating governmental boundary changes through annexations or detachments, approving or disapproving city incorporations, and forming, consolidating, or dissolving special districts. Under the California Environmental Quality Act (CEQA), LAFCO is a Responsible Agency for this project and it is in this role that Napa LAFCO is commenting on this EIR.

Comments on Noticing Procedures

The Notice of Preparation (NOP) for the St. Helena General Plan Update 2040 EIR was released for public review on April 2, 2018, and the Notice of Availability (NOA) was released on October 23, 2018. Napa LAFCO does not have a record of receiving the NOP or NOA for the project, as a Responsible Agency we request to be notified on all future proceedings related to this project and other projects where Napa LAFCO may have discretionary authority.

Margie Mohler, Chair
Councilmember, Town of Yountville

Brad Wagenknecht, Vice Chair
County of Napa Supervisor, 1st District

Gregory Rodeno, Commissioner
Representative of the General Public

Scott Sedgley, Commissioner
Councilmember, City of Napa

Diane Dillon, Commissioner
County of Napa Supervisor, 3rd District

Erik Lawrence, Alternate Commissioner
Representative of the General Public

Kenneth Leary, Alternate Commissioner
Councilmember, City of American Canyon

Ryan Gregory, Alternate Commissioner
County of Napa Supervisor, 2nd District

Brendon Freeman
Executive Officer

The 71-day public review period for the Draft EIR began on October 23, 2018 and ends on January 2, 2019. Although this extends beyond the mandated 45-day public review period, the 71-day public review period includes State holidays observed by members of the public and public agencies, including Napa LAFCO. This does not allow ample time to adequately review the 620-page Draft EIR and appendices. The public review period should be extended past the January 2, 2019 deadline to allow enough time to review the content of the Draft EIR and foster meaningful public discourse.

Comments on Chapter 2, Project Description

Planning Area

A2-B-2

The Planning Area for the St. Helena General Plan Update and Draft EIR encompasses approximately 3,594 acres including land within the City of St. Helena, the City's Sphere of Influence (SOI), and three adjacent unincorporated study areas outside of the City's SOI. Collectively, the three unincorporated study areas encompass approximately 450 acres. The location, size, and land use designations for each study area are described below:

- Study Area 1: The 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and St. Helena-owned utility infrastructure, including water tanks. Consistent with the Napa County General Plan, the land within Study Area 1 is designated Agriculture, Watershed, and Open Space.
- Study Area 2: The 100-acre area is located south of Chaix Lane near the southeastern boundary of the City and includes spray fields currently used to dispose of treated effluent from the City of St. Helena's Wastewater Treatment Plant. Consistent with the Napa County General Plan, the northern portion of Study Area 2 is designated Agriculture, Watershed, and Open Space. The southern portion of Study Area 2 is designated Agricultural Resource.
- Study Area 3: The 185-acre area is located south of Chaix Lane near the southwestern boundary of the City and includes parcels with existing commercial and residential development along State Route 29. Consistent with the Napa County General Plan, the land within Study Area 3 is designated Agricultural Resource.

Napa LAFCO established St. Helena's SOI in 1974 and the last jurisdictional change occurred in 1997. Currently, the City's SOI and City limits are coterminous with the exception of Lower Bell Reservoir, which is within the City's jurisdictional boundary and outside the City's SOI. Napa LAFCO data identifies the City's jurisdictional boundary as 3,046 acres in size. The St. Helena General Plan Update identifies on page 1-10 that the jurisdictional boundary comprises 3,024 acres. Please verify the acreage included within the legal jurisdictional boundary for the City limits and City's SOI.

The three study areas included within the City's Planning Area are under the jurisdiction of Napa County and have not been approved for inclusion in the City's SOI. The inclusion of the study areas expands the City's Planning Area beyond that proposed in the 1993 General Plan and extends beyond the City's jurisdictional authority. Approval of any SOI amendment is subject to the Napa LAFCO's discretionary review and approval authority

and will be reviewed in accordance with the policies and regulations of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 and Napa LAFCO's General Policy Determinations.

A2-B-3

The St. Helena General Plan Update Land Use Diagram designates the land within the three study areas as either Agricultural Resource or Agriculture, Watershed, and Open Space, which is consistent with the Napa County General Plan. However, inclusion of these areas in the Planning Area conflicts with the following Napa LAFCO policies related to SOIs:

- General Policy Determinations Section III (C)(4) Avoidance of Inclusion of Agricultural and Open-Space Lands: Land specifically designated as agricultural or open-space lands shall not be approved for inclusion within any city's sphere of influence for purposes of urban development unless exceptions are warranted based on the criteria outlined in Section B(3) and (4).
- General Policy Determinations Section III (C)(5) Preference for Infill: The Commission will consider the amount of vacant land within the established sphere of influence of a city when considering amendments and updates. The Commission encourages sphere of influence proposals that promote the infill of existing vacant or underdeveloped land thereby maximizing the efficient use of existing city services and infrastructure as well as discouraging urban sprawl. Conversely, the Commission discourages sphere of influence proposals involving vacant or underdeveloped land that requires the extension of urban facilities, utilities, and services where infill is more appropriate.
- General Policy Determinations Section III (C)(8)(b) The Commission shall encourage cities to first develop existing vacant and underdeveloped infill lands located within their jurisdictions and spheres of influence to maximize the efficient use of available services and infrastructure and discourage the premature conversion of agricultural and open-space lands to urban uses. The Commission shall encourage the development of vacant or underdeveloped infill lands located within cities' jurisdictions before the annexation of lands requiring the extension of urban facilities, utilities, and services.

Pursuant to the aforementioned policies, Napa LAFCO is unlikely to approve inclusion of land specifically designated as agricultural or open-space lands in St. Helena's jurisdictional boundary. In addition, pursuant to Measure J, adopted by Napa County voters in 1990, and Measure P, adopted by Napa County voters in 2008, Napa County lands designated for agricultural use shall not be included within a city's jurisdictional boundary for purposes of urban development. Chapter 2 should be updated to explain the reasoning for including unincorporated agricultural lands within the City's Planning Area.

Buildout Under the Proposed Plan

A2-B-4

Table 2.3-3 on page 2-21 of the Draft EIR includes potential residential development within the Planning Area through the year 2040. Under the "St. Helena" subheading, total residential development at buildout is estimated to be 3,100 units. However, the Existing total (2,700 units) and Future Development total (300 units) add up to 3,000 units. Under the "Study Areas" subheading, total residential development at buildout is estimated to be

A2-B-4

200 units. However, the Existing total (200 units) and Future Development total (100 units) add up to 300 units. The table should be updated to clarify the amount of residential development proposed.

Table 2.3-4 on page 2-21 of the Draft EIR includes projected population within the Planning Area by 2040. Under the "Study Areas" subheading, the total population is estimated to be 700 residents. However, the Existing total (600 residents) and Future Development total (200 residents) add up to 800 residents. Under the "Planning Area Total" subheading, the Existing total is estimated to be 6,400 residents. However, the St. Helena total (5,900 residents) and Study Areas total (600 residents) add up to 6,500 residents. The table should be updated to clarify the projected population estimates.

Table 2.3-5 on page 2-22 of the Draft EIR includes projected number of future jobs within the Planning Area through the year 2040. Under the "St. Helena" subheading, the total jobs at buildout is estimated to be 5,900. However, the Existing total (5,400 jobs) and Future Development total (900 jobs) add up to 6,300 jobs. Under the "Study Areas" subheading, the total jobs at buildout is estimated to be 1,100. However, the Existing total (500 jobs) and Future Development total (100 jobs) add up to 600 jobs. Under the "Planning Area Total" subheading, the total jobs at buildout is estimated to be 7,000. However, the Existing total (6,400 jobs) and Future Development (900 jobs) add up to 7,300 jobs. The table should be updated to clarify the projected number of jobs.

A2-B-5

Comments on Chapter 3.2, Agricultural Resources

Physical Setting

Figure 3.2-1 on page 3.2-3 of the Draft EIR identifies existing Agricultural Land Uses within the Planning Area. Land within the three study areas are shaded a light peach color. This color designation is not included in the figure legend. The figure legend should be updated to include all color designations.

A2-B-6

Chapter 3.2, "Agricultural Resources," of the Draft EIR, relies on the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) to identify important farmland within the Planning Area. Although FMMP is a great resource of information related to statewide important farmland resources, LAFCOs are directed by the State Legislature in Government Code Section 56001 to protect and conserve prime agricultural resources:

> "The Legislature finds and declares that it is the policy of the state to encourage orderly growth and development which are essential to the social, fiscal, and economic well-being of the state.
>
> The Legislature recognizes that the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with sometimes competing state interests of discouraging urban sprawl, preserving open-space and prime agricultural lands, and efficiently extending government services. …"

Prime Agricultural lands are defined according to Government Code Section 56064 as follows: A2-B-6

> "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:
>
> (a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
>
> (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
>
> (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.
>
> (d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.
>
> (e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

Based on direction of the State Legislature through the Cortese-Knox Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO evaluates the importance of farmland based on the methodology outlined in Government Code Section 56064. As shown in Figure 1, the Planning Area contains land designated as Grade 1 – Excellent. In addition, as shown on Figure 2, the Planning Area contains soils designated as USDA, Natural Resources Conservation Service Class I and Class II. Chapter 3.2 of the EIR should be updated to include an evaluation of the land within the City limits or SOI expansion areas that meets the definition of prime agricultural land as described in Government Code Section 56064. This analysis will provide members of the public, Napa LAFCO, and other decision makings bodies with a comprehensive description of existing important agricultural lands within the Planning Area and potential impacts that may result from the adoption and implementation of the St. Helena General Plan Update 2040. This type of analysis would provide Napa LAFCO the appropriate information for their potential consideration of any future SOI amendment requests.

Comments on Chapter 3.10, Land Use, Population, and Housing A2-B-7

Impact discussion 3.10-3 on page 3.10-27 of the Draft EIR, concludes that the project would not conflict with applicable land use plans, policies, or regulations from other agencies with jurisdiction in the Planning Area. As discussed above, pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, Napa LAFCO is responsible for the administration of the orderly formation and development of local

governmental agencies and services, preservation of agricultural and open-space resources, and discouraging urban sprawl. Therefore, the impact discussion should be revised to provide a consistency analysis with Napa LAFCO policies related to SOIs and the adopted 2008 Municipal Service Review for the City of St. Helena.

Comments on Chapter 4, Alternatives Analysis

A2-B-8

Description of Alternatives

According to the second paragraph under subheading, "No Project Alternative," on page 4-2 of the Draft EIR, the No Project Alternative would result in approximately 460 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR, the No Project Alternative would result in approximately 560 new residents and 1,380 new jobs. This section should be updated to clarify growth projections under the No Project Alternative.

According to the third paragraph under subheading, "Transportation Network Enhancement Alternative," on page 4-3 of the Draft EIR, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, 335 new housing units, and 935 new jobs in St. Helena by 2040. However, according to Table 4.2-1 on page 4-3 of the Draft EIR the Transportation Network Enhancement Alternative would result in approximately 900 new residents, 400 new housing units, and 1,100 new jobs. This section should be updated to clarify growth projections under the Transportation Network Enhancement Alternative.

Comparative Impact Analysis of Alternatives

A2-B-9

State CEQA Guidelines Section 15126.6(a) states that:

*"*An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives…"

Chapter 4, "Alternatives Analysis," of the Draft EIR identifies one alternative, the Transportation Network Enhancement Alternative, other than the mandated No Project Alternative. This does not constitute a reasonable range of alternatives to the project as directed by the State CEQA Guidelines. In the spirit of full disclosure and consistent with CEQA Guidelines Section 15126.6 (c), Chapter 4 should be updated to explain why no other feasible alternatives were considered or proposed as part of the alternatives analysis.

A2-B-10

According to the last paragraph on page 4-2 of the Draft EIR, the Transportation Network Enhancement Alternative would reduce significant and unavoidable impacts related to vehicle congestion on State Route 29 in St. Helena. However, as described on page 4-21 of the EIR, the mitigation measures would require actions from the California Department of Transportation which is not subject to the City's control; therefore, the impact would remain significant and unavoidable. In addition, the alternative would result in new significant impacts at three intersections. Chapter 4 should be updated to clarify that the

project alternative would not reduce significant and unavoidable impacts with respect to transportation, rather it would result in environmental tradeoffs.

A2-B-11

According to page 4-29 of the Draft EIR, the Transportation Network Enhancement Alternative is the environmentally superior alternative. However, as shown on Table 4.4-1, the Transportation Network Enhancement Alternative would worsen impacts with respect to flood hazards and permanent ambient noise. In addition, when compared to the project all other impacts remained the same. Contradictory to State CEQA Guidelines Section 15126.6(a), the alternative does not avoid or substantially lessen any of the significant effects of the project but rather worsens impacts. Chapter 4 should be updated to include an analysis of alternatives that avoid or substantially lessen project impacts. This analysis will provide the decision-making bodies, Napa LAFCO, and members of the public with sufficient information for consideration prior to the adoption and certification of the St. Helena General Plan Update and Draft EIR.

A2-B-12

Please contact me with any questions by telephone at (707) 259-8645 or by e-mail at bfreeman@napa.lafco.ca.gov.

Sincerely,

Brendon Freeman

Brendon Freeman
Executive Officer

cc: David Morrison, County of Napa Planning, Building & Environmental Services Director

Figure 1

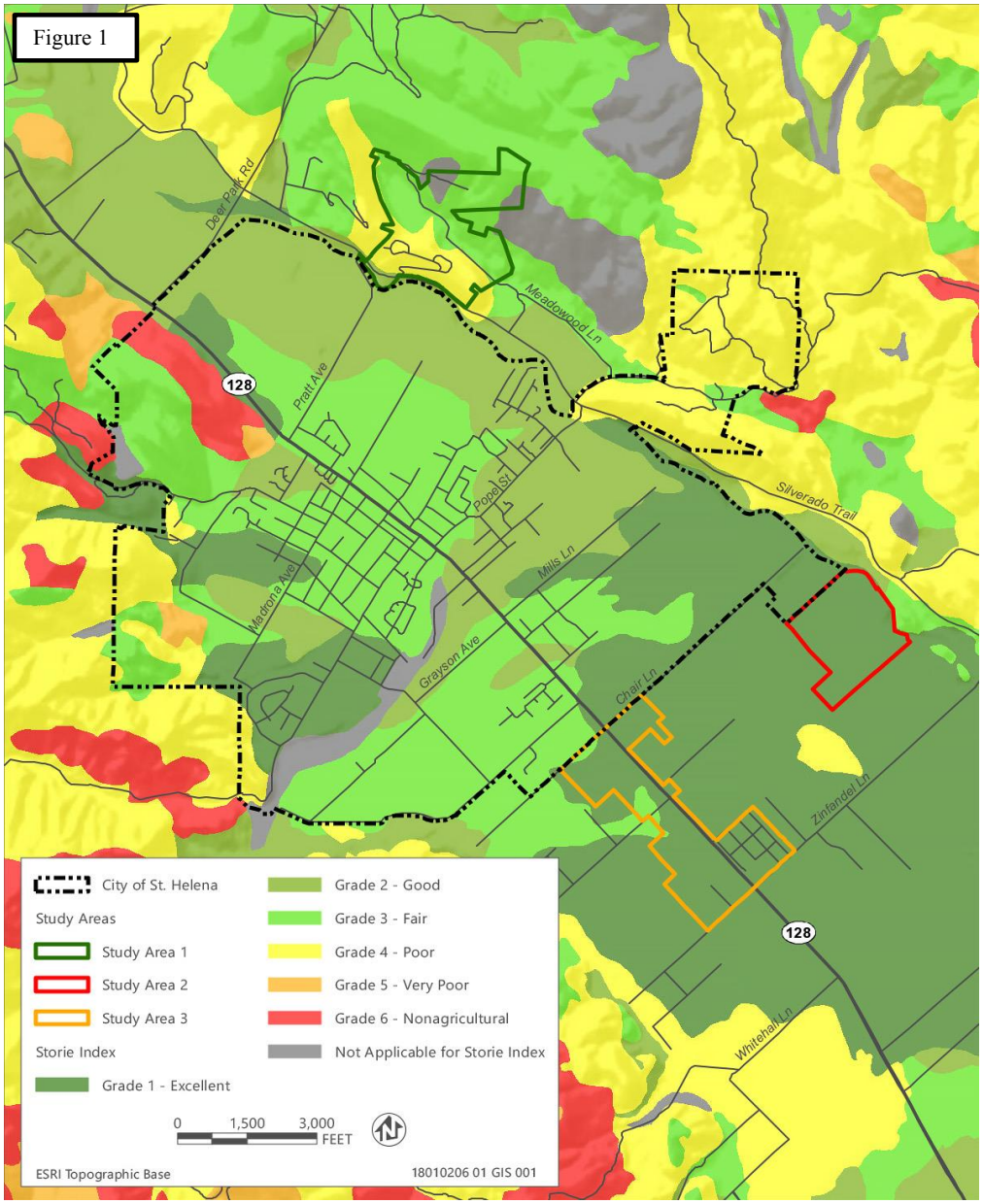
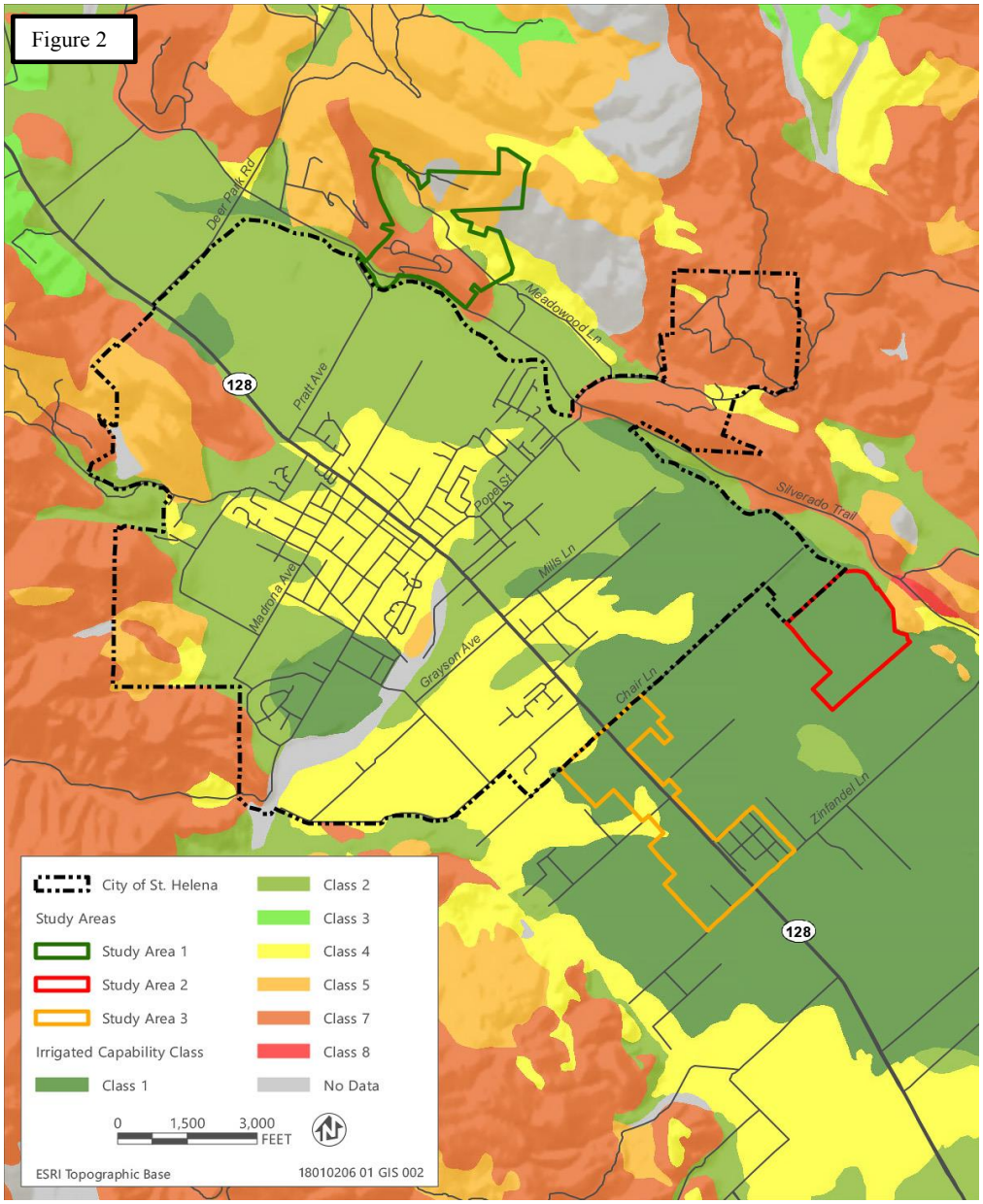

Deer Park Rd
Meadowood Ln
128
Pratt Ave
Pope St
Silverado Trail
Mills Ln
Madrona Ave
Grayson Ave
Chair Ln
Zinfandel Ln
128
Whitehall Ln
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Storie Index
Grade 1 - Excellent
Grade 2 - Good
Grade 3 - Fair
Grade 4 - Poor
Grade 5 - Very Poor
Grade 6 - Nonagricultural
Not Applicable for Storie Index
0
1,500
3,000
FEET
ESRI Topographic Base
18010206 01 GIS 001

Figure 2


Deer Park Rd
Meadowood Ln
128
Pratt Ave
Popel St
Silverado Trail
Mills Ln
Madrona Ave
Grayson Ave
Chiles Ln
Zinfandel Ln
128
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Irrigated Capability Class
Class 1
Class 2
Class 3
Class 4
Class 5
Class 7
Class 8
No Data
0
1,500
3,000
FEET
ESRI Topographic Base
18010206 01 GIS 002

Comment Letter A3-A

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

A3-A-1

A Tradition of Stewardship
A Commitment to Service

December 19, 2018

Noah Housh
Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

RE: **City of St. Helena 2040 General Plan Update**
Draft Environmental Impact Report
Request for Extension of Comment Period

Dear Noah;

Thank you for providing Napa County an opportunity to comment on the draft St. Helena 2040 General Plan Update (Update). Napa County has several significant concerns with the most recent version of the Update, and requesting that the comment period on your Draft Environmental Impact Report (DEIR) be extended to provide time to engage in collaborative discussion seeking alignment of City and County objectives. A 120-day extension is requested. We request that a determination for an extension be made prior to 5:00 p.m. on December 21, 2018.

To the best of my knowledge, Napa County has never commented on any general plan environmental document prepared by the cities and town of Napa County, and instead we have addressed issues through dialogue focused on finding mutually-agreeable solutions. We are requesting that dialogue commence on several aspects of the proposed Update including, but not limited to, the Study Areas located outside of the existing city limits, housing, circulation, emergency services, water and wastewater facilities, and possibly climate action planning.

A3-A-2

As you may be aware, the County is in the midst of preparing a Strategic Plan. Throughout our community engagement process, we have consistently heard that the cities, town and County should be working together, working as partners to benefit our entire community. This necessary partnership step has not yet occurred with your Update. For example, the three very selective Study Areas located outside of the city limits and your Urban Limit Line have been included in the most recent draft of the Update without discussion between our agencies. Although the Update states that these areas are being studied for "informational purposes only" (Update, page 1-12), it is evident that the selective Study Area boundaries, and draft Policies LU1.G and LU1.H indicate the City's intent is to pursue annexation of these areas. The County has no issue with the City conducting meaningful analysis of unincorporated

A3-A-2

lands surrounding the community to inform the public and decision makers, but that is not what is occurring with these the Study Areas.

The boundaries of the Study Areas do not align with any of the reasons given for studying these select areas. The Draft Update implies that these areas must be studied because the City provides utilities and emergency services. Those statement are inaccurate. City water service boundaries, and fire mutual aid boundaries extend far beyond the Study Areas (see attached maps). Police and fire services are for mutual aid. The City is not the sole emergency service provider as is implied. Numerous properties within the Study Area boundaries do not receive City water service, including all of Study Area 2 which is the City-owned sewage treatment plant spray fields. The City provides no sewer service to any of these areas. The only obvious determining factor for the boundaries of Study Areas 1 and 3 is that they align quite strategically with several long-established major revenue generating developments. Smart land use planning principles dictate that the City should focus on expansion of urban growth areas within the city limits before considering expansion of the city limits.

A3-A-3

The latest draft of the Circulation Element calls for a number of new traffic lights, most notably on Silverado Trail. Adding traffic lights without expanding internal road network is not a solution to existing or future traffic conditions. This idea will likely result in greater congestion as well as have a negative ripple effect on County and State roadways. The City's high home values do not allow significant opportunities for lower wage service workers to reside in the community, and results significant commute traffic through unincorporated areas. New development called for in the Update will increase vehicle load within unincorporated areas that has not been satisfactorily addressed in the DEIR. Our agencies need to find a common vision on circulation before the DEIR is certified.

A3-A-4

A3-A-5

A3-A-6

The County would like to explore partnering on efficiencies in City services. We have very successful long running partnerships with the City of American Canyon providing law enforcement services and with the Town of Yountville providing both law and fire services that may merit consideration by St. Helena. As you know, staffing is the single greatest demand placed on local agency budgets, and the degree in which an agency can control those costs reduces pressure on the need to grow revenues. This salary/revenue relationship places a great deal of stress on the City's overarching goal to maintain St. Helena's small town character.

Partnering on affordable housing appears to be of mutual benefit to our agencies. The Update's time horizon is 2040, but housing allocations are only planned through 2023 (in accordance with State mandated housing cycles). It is likely that both St. Helena's and the County's Regional Housing Needs Allocation (RNHA) will be considerably larger in the next housing cycle starting 2023. The City has very limited ability to generate housing trust fund revenue through development impact fees. The County has limited areas where new housing can be placed outside of preserved agricultural lands, and the City has vast tracks of underdeveloped property within the city limits. Those areas should develop before any consideration of city limit expansion is undertaken. Some of those areas may be suitable for housing. A shared vision addressing affordable housing needs through the horizon year of your Update appears to be of critical importance to both of our agencies.

A3-A-7

We understand that the City may be anxious to complete the Update. We believe our request for extension of the DEIR comment period allowing time to partner on inter-jurisdictional issues is the most expedient and cost efficient path to successfully completing the Update. We look forward to meeting with you at your earliest convenience once extension of your DEIR comment period has occurred.

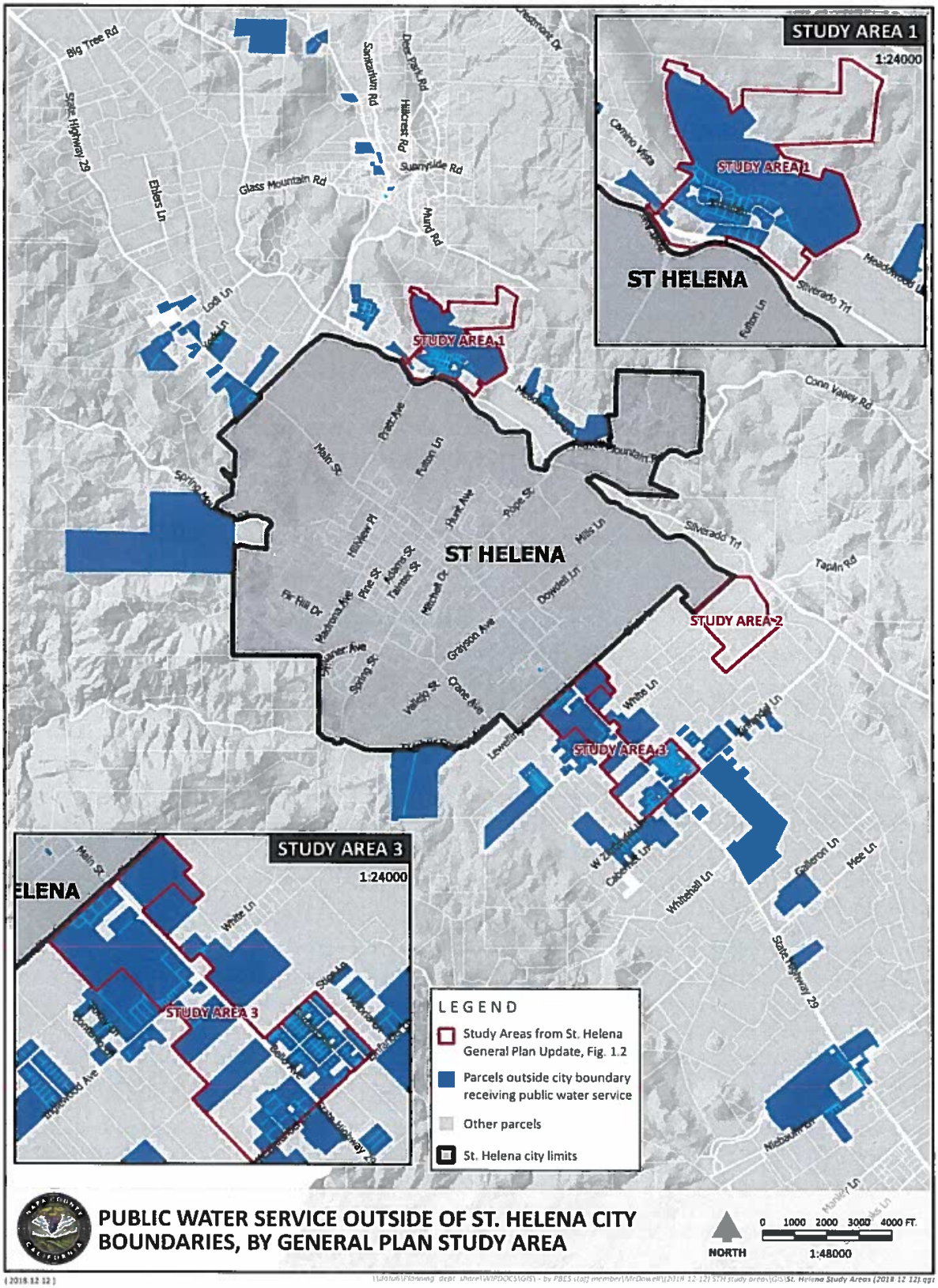
Sincerely,

David Morrison
Director of Planning Building and Environmental Services

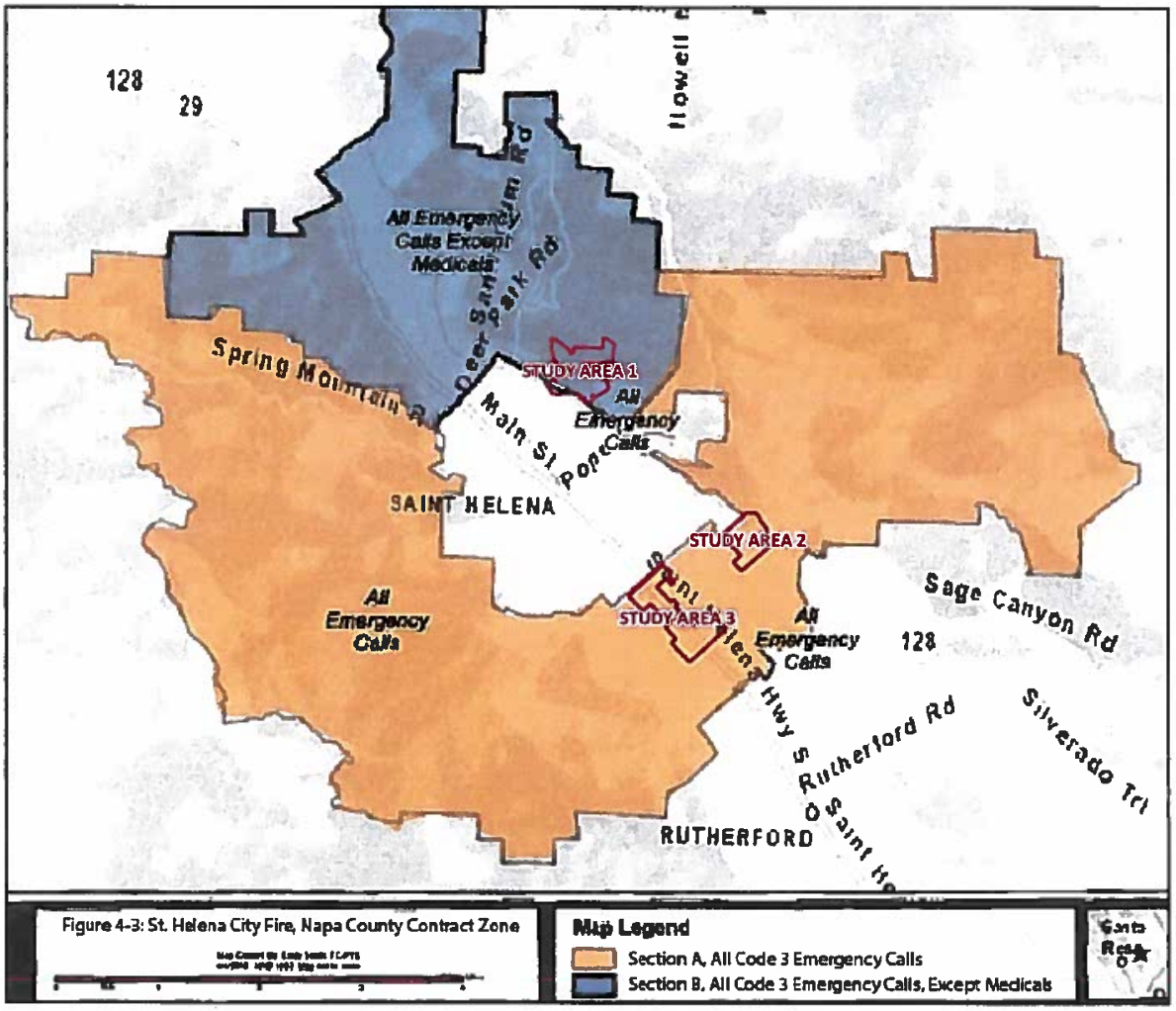
Attachments:
St. Helena Water Service Area Exhibit
Napa County-St. Helena Mutual Aid Exhibit

cc: Napa County Board of Supervisors
Minh C. Tran, County Executive Officer

A3-A-8


STUDY AREA 1
1:24000
STUDY AREA 1
ST HELENA
STUDY AREA 1
ST HELENA
STUDY AREA 2
STUDY AREA 3
STUDY AREA 3
1:24000
STUDY AREA 3
LEGEND
Study Areas from St. Helena General Plan Update, Fig. 1.2
Parcels outside city boundary receiving public water service
Other parcels
St. Helena city limits
PUBLIC WATER SERVICE OUTSIDE OF ST. HELENA CITY BOUNDARIES, BY GENERAL PLAN STUDY AREA
NORTH
0 1000 2000 3000 4000 FT.
1:48000

A3-A-8



ST. HELENA CITY FIRE - NAPA CO. CONTRACT ZONES BY GENERAL PLAN STUDY AREA

NORTH

0 0.5 1 1.5 2 MI

1:100000

(2018.12.17)

Comment Letter A3-B

A Tradition of Stewardship
A Commitment to Service

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

A3-B-1

January 2, 2019

Noah Housh
Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

RE: **City of St. Helena 2040 General Plan Update**
Draft Environmental Impact Report

Dear Mr. Housh;

Napa County is in receipt of your December 21, 2018 email denying my request to extend the comment period on the Draft Environmental Impact Report (DEIR) for the City of St. Helena (City) 2040 General Plan Update (Update). The time to review the DEIR has been constrained by the holidays; however, I have strong reservations about several aspects of the Update and DEIR. I believe that it would be best to address these issues through direct dialogue, but given the denial of the extension request, I am compelled to include my concerns as comment on the adequacy of the DEIR. Furthermore, the County of Napa has recently completed an unprecedented community outreach effort to develop a three-year strategic plan. In our nearly 40 community meetings, collaboration between the County and the cities and town was a reoccurring theme in many of the conversations. The County sees St. Helena's General Plan as an opportunity to collaborate and we request further engagement and collaboration on the issues outlined in this letter.

Both the Update and DEIR have serious issues that should preclude their adoption and certification until matters have been resolved to our mutual satisfaction. Napa County's comments are provided in detail below. However, in general, our primary concerns can be summarized as follows:

A3-B-2

1. There is inconsistency between many of the stated policies in the draft documents and in the methodology used to define the study areas, particularly as it relates to lands designated as agriculture. The documents place an emphasis on preserving agricultural lands within the city limits and state a policy of protecting agricultural lands immediately outside the city limits. At the same time, the documents pursue studying annexation of lands in the unincorporated area that are protected by Measure J and Measure P. The stated policies and intention of the study areas clearly contradict each other, as any annexation would remove the agricultural protections provided under

Measure J and Measure P. Further, if the City intends on pursuing future development, it would make greater sense to develop in areas currently within the City limits rather than pursuing lands in the unincorporated area and threatening agricultural protections put in place by the voters of Napa County. A3-B-2

2. Both the General Plan and the DEIR project significant job growth in the tourism and hospitality industries. While the number of jobs projected differ significantly between the two documents, regardless, the need for housing that is affordable to the existing and projected workforce is not adequately addressed. Failure to address existing and future housing needs in the City exacerbates the challenges the greater Napa County community faces in providing housing opportunities. A3-B-3

3. The Transportation Element does not address existing traffic congestion or consider further impacts on traffic created by an imbalance between job growth and housing. While the City of St. Helena has the option to adopt Statements of Overriding Consideration and accept that traffic congestion will increase as a result of an adopted General Plan the General Plan should clearly state this as a goal(s) and the DEIR should fully disclose the environmental impacts. A3-B-4

General Comments A3-B-5

1. As noted in my December 19, 2018, request, three Study Areas located outside of the city limits were included in the most recent draft Update. The stated purpose for including these areas was for "informational purposes only" so that the City could conduct meaningful analysis to inform both decision makers and the public. However, as noted in the letter, meaningful analysis in the DEIR does not correlate with the boundaries of the Study Areas. Instead, the DEIR more broadly looks at virtually all unincorporated areas surrounding the City and then applies a mistaken rationale that out-of-agency City services provided to these selective areas makes them eligible for annexation, which is not the case. For example, Study Area 2, which is a City owned spray field, generates no demand for library services, whereas the unincorporated community of Angwin located several miles from the City generates demand for City library services, but is not included within a Study Area. This inconsistent treatment of unincorporated areas purportedly relating to the selective Study Areas is a reoccurring inconsistency over most areas of analysis within the DEIR. This is confusing to the reader at a minimum, and may lead to incorrect assumptions regarding the extent to which study areas qualify for annexation.

2. Proposed Policies LU1.G and LU1.H seek annexation of unincorporated property. The DEIR does not address the potential environmental impacts associated with these policies, which will result in the urbanization of unincorporated farmland. Similarly, Policy LU1.G calls for the extension of sewer service to unincorporated areas. The DEIR does not evaluate this growth-inducing proposal. A3-B-6

3. Both the Update and DEIR identify that the State has ordered upgrading of the City's sewage treatment facilities, but the DEIR does not address how the City plans to overcome this critical A3-B-7

service-deficiency. The City cannot plan for sewer line extensions and the associated impacts of growth without knowing whether the sewage treatment facility can or will be allowed to operate in the future at the level needed to provide additional services. These are significant unmitigated public utility impacts. A3-B-7

4. Policy language in the Update is inconsistent in terms of how the City intends to interact with the County. For example, Policy LU5.2 encourages the County to promote agriculture and limit development on nearby unincorporated lands. As always, the County is eager to engage with the cities and town on this crucial topic. In contrast, Policies LU1.G and LU1.H acknowledge the need to collaborate with property owners and LAFCO in pursuing annexation, but leaves the County out of the stakeholder list despite the fact that annexation cannot occur without both the City and County agreeing to a tax-sharing agreement. The proposed expansion of the City Limits is further vexing by the inability to meet current municipal obligations as noted in number 5 below. A3-B-8

5. The DEIR should also evaluate an alternative that reduces the current extent of incorporated land. The City can clearly meet its projected needs for future growth within the existing city limits, even with the City designating 46 percent of the incorporated area as agriculture and not intended for urban development. The inclusion of farmland within the city limits but outside of the Urban Limit Line adopted by the City is problematic. In essence, the City is obligating itself to provide urban services to 1,451 acres of agriculture, including water, sewage, police, fire, and public administration. This significantly affects the ability of the City to meet their municipal obligations in a sustainable manner. A reduced development alterative that moves rural land out of the City's growth boundary would still meet all of the DEIR project objectives and would result in fewer significant and unavoidable environmental impacts than the proposed project, resulting in the environmentally superior alternative. A3-B-9

Study Areas A3-B-10

6. The growth assumption methodology presented in the DEIR is confusing and needs clarification. Tables ES-1, ES-2 and ES-3 make little sense, even with the disclaimer footnote noting that figures are rounded to their nearest hundred. First, it is inappropriate to round figures to their nearest hundred in a setting such as St. Helena because the levels of growth in many cases do not reach 100. For example, the City's Regional Housing Needs Allocation is 31 units. Rounding that to the nearest 100 equates to zero. As this confusion relates to the Study Areas, the DEIR appears to have based some of the impact analysis on unrealistic growth assumptions. Table ES-1 suggests 100 new dwelling units in the Study Areas, when in actuality there does not appear to be enough vacant land to accommodate anywhere near this number within the three Study Areas combined. As these lands are protected by the County's Agricultural Preserve and Measures J and P, it is unclear how this projected level of growth can be obtained within the Study Areas, absent City incorporation and rezoning (land within the cities and town are not subject to Measures J and P).

   Likewise, the DEIR projects 1,100 new jobs within the Study Areas under existing City and County zoning/general plan, but only 600 forecasted if the Update is adopted. There is no logical

reason for this, and it appears simply to be a means justify adoption of the Update by comparing it to inaccurate assumptions regarding the status quo. The analysis makes it appear as if the proposed policies in the Update would result in much more intense development than would occur under the County. Proposed City policies call for the annexation of these areas (LU1.G/H), extension of sewer service outside of city limits, an increase in hotel rooms (ES2.6), encouragement of more restaurant seats (ES2.7), and additional water connections, which are all things that are not possible under County regulations. As presented, this information can lead to inaccurate conclusions, which could prevent sound policy decisions. A3-B-10

Finally, the inclusion of the Study Areas ignores the obvious existing availability of developable land currently labeled as Agriculture already located within existing city limits. A3-B-11

Transportation and Traffic A3-B-12

7. CR1.1 in the Update states a desire to promote connected streets; however, the Transportation Element does not include any new congestion relieving additional roadway segments/connections. The element defers to a later unspecified date, any segment improvements that could relieve local congestion.
8. With virtually no planned residential growth in the Update, the goal in CR3.3 of shifting work trips from predominantly single-occupancy vehicles to 45% carpool, transit, walking is unrealistic. The Economic Sustainability policies emphasize job growth in the lower paying sectors such as hotels, restaurants and retail, which will require more commuting at shifts throughout the day and evening. Without significantly increasing the number of people per household (the City is currently 9% lower than the countywide average), even more housing will be needed to house future workers, increasing the likelihood that they will commute from out of the plan area. There will be few homes available from which employees will be able to walk to work. Transit and carpooling are unlikely to meet nearly half of the demands of a service economy workforce. This is not a realistic basis for establishing long-term policy. A3-B-13
9. The discussion of Intersection Traffic Operations on page 3.13-42 of the DEIR includes a recognition of potential impacts to roadways within Napa County; however, the DEIR only evaluated one intersection. The analysis ignores the potential effects of future development in St. Helena on the need for improvements on County roads such as Deer Park Road, Pratt Avenue, or Zinfandel Lane. The DEIR did not comprehensively evaluate the impacts to all County roads within the potential area of impact, especially considering the likelihood of additional commuting referenced in Paragraph 8 above. A3-B-14
10. Any proposed traffic controls on major roadways within St. Helena (esp. State Hwy 29 and Silverado Trail and the crossroads) will cause backups/delays in unincorporated areas. This impact is not recognized or evaluated. A3-B-15
11. As stated in Impact 3.13-4 of the DEIR, the City is relying on development to connect significant circulation gaps in the street network; however, the needed gap closures are within areas that the Update does not designate or plan for future growth. The discussion regarding this Impact goes on to say the DEIR relies on the following to improve traffic congestion and make the roadways A3-B-16

safer: (1) City's support of the concept of complete streets; (2) Napa County's efforts to improvement countywide trails; and (3) Caltrans' work to reduce congestion on State Hwy 29. There is no defined capital improvement plan to ensure completion of the street network. Instead, mitigation relies on the contributions of other agencies, the benefits of which are speculative regarding traffic congestion within the City. This is not a feasible approach to addressing traffic management and is inadequate for the purposes of the DEIR. A full and appropriate traffic analysis should be prepared that considers the potential impacts of leaving the street network in place with no foreseeable future gap closures. A3-B-16

Water

12. It appears that the City water system is at capacity. The DEIR only considers conservation measures as a suggestion, not a requirement, and no new long-term sources or significant reductions are proposed. This seems to be a shortsighted approach and possibly a significant environmental impact when measured against the additional future demands created by the proposed annexation areas, as well as projected hotel and restaurant growth. A3-B-17

13. The documents seem to dismiss the creation and use of recycled water as infeasible but the conclusions lack any credible sources as to why recycled water is infeasible. Since the City owns and operates a wastewater treatment facility, it seems plausible and preferable to find ways to utilize this resource for irrigating the significant agricultural properties within the City limits, as well as other facilities such as playfields, parks, municipal landscaping, etc. A3-B-18

Sewage

14. The City is currently under order to upgrade the municipal wastewater treatment plant. Neither the Update nor the DEIR recognizes this critical issue. This is a significant constraint to the No Project alternative, as well as any future growth proposals. The City should revised the DEIR and the Update to address how wastewater treatment will be improved and funded, before any decision are made regarding new growth and annexation. A3-B-19

Housing

15. The Update calls for significant job growth in services that generally pay lower wages: hotels, restaurants, and retail. However, the Housing Element only plans for 31 residential units through 2023, far short of the General Plan horizon of 2040. This modest housing growth does not serve the current needs of the community and does not meet the future needs given the planned job growth, which is noted as a significant housing/jobs imbalance in the Transportation and Traffic Element (p3.13-2). This unresolved and ongoing imbalance has important implications for many other Impacts evaluated in the DEIR, and calls into question the adequacy of the entire document. A3-B-20

Alternative Analysis

As discussed in Paragraphs 12 and 14 above, the City has serious obstacles in continuing to provide adequate water and wastewater treatment. The DEIR acknowledges a jobs/housing balance without offering any solution and traffic congestion without requiring any relief. The Update is determined to have Significant and Unavoidable Impacts in the areas of farmland loss, air quality, climate change, and traffic Level of Service. The DEIR even concludes that another alternative, not the Update, is Environmentally Superior. Yet despite these concerns, the DEIR A3-B-21

nevertheless recommends the Update as the Preferred Alternative. This gives the appearance that the DEIR analysis does not provide an objective and impartial analysis, but is instead a means to justify the proposed Update. A3-B-21

Our shared community faces broad and fundamental issues that challenge the quality of life in both urban and rural areas. Finding solutions to address traffic, housing, water, and sustainability require regional approaches that involve governments working together. My goal in providing these comments is to establish a more complete analysis of pending policy and create an opening for the City and County to discuss meaningfully how we can achieve our mutual goals. Conflict is an unnecessary expense that does not benefit either participant and prevents the exploration of productive ideas. I look forward to starting our discussion. A3-B-22

If you have any questions regarding this letter, please contact me at (707) 253-4805 or at david.morrison@countyofnapa.org. Thank you for the opportunity to provide comments on the DEIR.

Respectfully,

David Morrison MCR

David Morrison, Director

cc: Napa County Board of Supervisors
Minh C. Tran, County Executive Officer

Comment Letter A4-1

NAPA VALLEY TRANSPORTATION AUTHORITY

MEMO

A4-1

Date: **December 26, 2018**

To: **Noah Housh, Planning Director**
City of St. Helena

From: **Napa Valley Transportation Authority**

Re: **St. Helena General Plan Update 2040**

Upon the review of the St. Helena General Plan Update 2040, the Napa Valley Transportation Authority would like to submit the following comments:

A4-2

General Comment – Please replace all "NCTPA" references to "NVTA" and use the updated logo and Vine brand and color scheme. Also, "VINE" is now "Vine".

P. 5-3
- Should mention the Countywide Bike Plan update now in progress

P. 5-4
- ACS reference, but no reference to the Napa Countywide Pedestrian Plan or Napa County Travel Behavior Study. The St. Helena Pedestrian Plan was adopted by the City Council on May 9, 2017 www.nvta.ca.gov/countywide-pedestrian-master-plan.

P. 5-7
- 2016 Pedestrian Plan should be included along with 2010 ADA Transition Plan.

P. 5-9
- Old Vine Go photo-need to update photos for Vine Transit in plan. NVTA will provide new Vine photos.

P. 5-10
- First bullet - revise sentence regarding Vine Trail-"will" connect St. Helena, not "connects"

P. 5-11
- Please reference the current Countywide Transportation Plan – Vision 2040 – Moving Napa Forward www.nvta.ca.gov/countywide-plan-vision-2040.
- No reference to other plans such as the Countywide Bike Plan, Ped Plan, Travel Behavior Study or Plan Bay Area etc.

P. 5-23

625 BURNELL STREET | NAPA CA 94559 | 707-259-8631 | NVTA.CA.GOV | VINETRANSIT.COM

A4-2

- Where did the reference regarding bike lane and shared parking come from? CVC does not allow parking in bike lanes.
- Class III-"vehicle barriers"-Class III facilities do not include barriers-Class IV includes separation.
- Add Class IV – separated bike lanes with description

P. 5-25

- When was this map completed? There are differences from some recommendations in the current Bike Plan Update that were reviewed by City Staff.
- Should reference Bike Plan Update currently underway.

P. 5-30

- c - These are identified in the countywide Bike and Ped Plans
- e - ACS is mentioned-should include Countywide Transportation Plan, Bike Plan and Ped Plan
- h – should state, "…in accordance with NVTA's Countywide Transportation Plan"

P. 5-32 through P. 5-43

CR1. A

- Include transit facilities

CR1.K

- Include transit improvements
- TDM strategies should coordinate with NVTA

CR2.1

- Figure 5.4 reference – These exist – there is no reference to the Pedestrian Plan or proposed facilities in Bike Plan update which have created these networks. Change to, "Update comprehensive bicycle and pedestrian networks identified in the Countywide Bike and Pedestrian plans that enhance neighborhood connectivity."

CR2.6

- No reference to the Safe Routes to School (SRTS) program which serves St. Helena schools.

P. 5-38 through P. 5-42

CR2.D

- Caltrans Bicycle Transportation Account has been replaced by the Active Transportation Program-there are new requirements under this program-see requirements in adopted 2016 Pedestrian Plan-update reference.

CR3.1

- TDM-no discussion of SB 1339 compliance/requirements or of NVTA's TDM programs.

CR3.4

- TDM Programs-include coordination with NVTA

CR 3.5

- Should mention SRTS program

CR4.5

- "a" SRTS program – should be "the" SRTS program

Comment Letter B1

From: Jerry Hyde [mailto:jerry@jerryhyde.com]
Sent: Wednesday, December 19, 2018 6:52 PM
To: Noah Housh
Subject: RE: Meeting

December 19, 2018

Hi Noah, thanks for the note.

Quick Background: I worked with Greg Desmond starting in around 2009 up through Victor Carniglia in mid-2016 on the Noise Element and the EIR. We made it a better document beyond the "boiler plate" stuff the sound consultants provide on a short budget. Everything I did and input provided was done "through channels" through Greg, to the GP consultants and then to the sound consultants. This work included a five month noise study I did on background noise levels in St. Helena, what are commonly called "ambient" noise levels, information the consultant failed to provide, or understand. All this work was done, not through the public comment process, but as a *pro bono* technical consultant to the City. B1-1

The EIR: I had done a review for Carniglia in July 2016 of the EIR pointing out a major flaw. It has been corrected in the current IER, so I have no comments to make on that. Other than, really, 90% of the EIR is total "boiler plate" and can be found verbatim in any other noise EIR the consultant has done. B1-2

The Noise Element: I do have comments on this, as I fear the current form has reverted back to the original, before the work we did between 2009 and 2016. B1-3

Let's meet the week of January 14th. We'll need some time, but this is about giving our City a quality document, right? About any time is fine with me, so let me know. B1-4

In the meantime, have a great time off. I will too. ☺

Yours,

Jerry
Fellow, Acoustical Society of America (ASA)
Fellow, British Inst. of Acoustics (IOA)
Lecturer in Architectural Acoustics: IOA Hamburg (Germany), October 2018
Member: Institute of Noise Control Engineering.

Comment Letter B2

From: Glenn Cook [mailto:cookwinery@gmail.com]
Sent: Thursday, December 20, 2018 3:35 PM
To: Noah Housh
Subject: General Plan

B2-1

Noah,
I noted with interest in the newspaper that the recent public hearing on the EIR was "poorly attended". One of the reasons suggested for the crowd of 4 persons in attendance was that "their comments just don't matter". That sure strikes home to me.

When we bought our first home here on Tainter Street in 1986, I discovered that we needed to plan our trips to buy building materials at Central Valley Supply to avoid the back-up on 29 on our return. Often, we would loop around Sulphur Springs, Crane and Valley View Streets which I'm sure the neighbors appreciated.

After we moved, I had a new alternate plan; driving south on 29, across Zinfandel, and back up the Trail.

One day, in total frustration, I stopped into the Planning Department to ask the OBVIOUS QUESTION. Why isn't there an alternate to and through Saint Helena that provides access to the businesses south of town. I suggested perhaps an extension of Starr or some other street, or extending Dowdell or Vintage Streets to the Trail. I was told "that is in the Plan". That made sense to me. After all, it would allow businesses like Central Valley, Harold Smith and all the rest to provide better service to the community. Added to that, emergency vehicles could have better access North and South.

That was over thirty years ago.

Now, I know the wheels of government turn slowly so I would stop by the Department every five or ten years to check on that issue. At first I was told it was "difficult to cross farm property", even though I did that to drive my tractor to Lampson for service and repairs. Later, other reasons were given culminating in the latest nonsensical response; "But, we are planning to put more stop lights in on highway 29 and the Trail". WHAT??? So we now have the added inconvenience of providing signal light turn-in spacing for those entering the 29 backup. Consider, reducing the traffic congestion on highway 29 would increase SAFETY. Stop lights don't decrease vehicle counts.

But now, I get it. My comments just don't matter. That's why I don't stop by anymore.

For what's worth,
Glenn Cook

12-24-18

~~April 5, 2018~~

Also - to be added to comentary on the 2018 EIR-General Plan

~~January 30, 2018~~

To the City of St. Helena- RE: the ~~new Hunter~~ General Plan EIR: Peter Mennen 12-24-18

Comment Letter B3

B3-1

In 1997, I was selected by Friends of the Napa River to sit on the Committee appointed by St. Helena's City Council to decide the best way to spend our portion of Measure A funds which were to be used to minimize the risk of flooding on Napa River and Sulphur Creek inside City Limits, with the **requirement** that any alterations would be carried out within a "Living River" context, assuring that any changes would enhance the river's environmental health while benefiting us.

While most municipalities along the river (especially the City of Napa) made an honest effort to abide by the "Living River" requirement, the St. Helena Committee that took on this task was corrupt through and through, and no one other than I gave even a pretense of paying attention to "Living River" principles. It was an appalling experience for me. The fix was in from the beginning, and among the proposals that were floated was a cynical rerouting of Napa River above Pope Street bridge that would leave the riparian woodland intact for the moment, but was deliberately designed to erode and destroy both banks and all the riparian trees and habitat over a period of a few years. I made enough of a stink about that cynical plan that it was eventually dropped from consideration, but sadly nothing better was put forward.

In an attempt to get the Committee to understand what the implications of their proposals would be for people living downstream and the survival of Pope Street Bridge, I personally funded through Friends of the Napa River a brief study by the highly regarded hydrology experts Philip Williams and Associates, which we gave to the St. Helena Measure A Committee so they could begin to understand the downstream impacts above Pope Street Bridge and to the bridge itself if they did one or another of their plans. Williams' mapping of flow patterns revealed great downstream risks involving the plan they settled on: the building of a long, riverside levee that cut off a huge, undeveloped, low-lying area that accommodated flood water every time there was a major rain event and took pressure off the area just above the bridge. As I recall, I spent $20,000 on the Phil Williams study that gave the Committee basic prognostications that would help them understand the implications of what they were proposing; but to my knowledge, that study was completely ignored by every member of the Committee and the highly paid consultants as well. That's when I washed my hands of the crooked Committee and its phony "Living River" process and quit in disgust.

If anyone had genuinely cared, I was prepared to further fund Philip Williams to assure a legitimate "Living River" solution was developed, as **required** by Measure A, which, as you may recall, passed with more than the necessary two thirds majority of the county's vote! This "super majority" made the "Living River" provision a **mandatory** aspect of whatever alterations were carried out using Measure A funds, as opposed to a simple majority vote that could be given little more than lip service.

St. Helena's actual alteration: the huge, lengthy levee which destroyed many acres of our priceless existing floodplain, was in complete violation of both common sense and the "Living River" mandate. It was done for no reason but to destroy an existing, critically important and legally protected floodplain in order to turn all that low land into a huge housing development in the most unsuitable possible location. Now, during flood events, the changed river flow below the levee is destroying the once-stable bank just above Pope Street Bridge. A beautiful, historic mansion- I think it is 2240 Pope Street- is already being put at serious risk of toppling into Napa River as the high bank there is rapidly collapsing. This massive erosion, which will soon destroy the great old estate that existed safely there for more than a century, is a direct result of the changed flow dynamics caused by the levee's elimination of the flood plain that existed just above it. **I believe the City is directly liable for the upcoming destruction of that property!** The destructive, illegal levee, along with Hunter's proposed development that is bound to flood, has got to go **NOW!** This is all the product of a corrupt enterprise between a past Council, City staff and Hunter.

Peter Mennen PO Box 421 St. Helena CA 94574 707-963-1170

CCs- Chuck Vondra, John Milliken, and the affected property owners Pope Street

Peter Mennen 12-24-18

11

B3-2

CITY HALL, 1480 MAIN STREET
ST. HELENA, CALIFORNIA 94574
(707) 963-2741

Add to 2018 EIR
PM 12-24-18

October 6,1998

Peter Mennen
P.O. Box 421
St. Helena, CA 94574

Re: Pope Street Bridge Park

Dear Mr. Mennen:

Jerry Cormack and I have both tried to return your calls but there was no answer nor answering machine at the number that we were given (963-~~2688~~). 2668-

The Pope Street Park Master Plan that you saw in our offices is a conceptual plan that was prepared from the recommendations of the Parks and Recreation Commission. The plan is currently being reviewed by staff and two members of the City Council. There are a number of concerns with the plan and alternatives will be reviewed.

This was in fact done! PM 12-24-18

I have not heard of any plans to rip-rap the riverbank next to the park. There are some existing areas of bank stabilization north of the bridge that are in need of repair. The proposed proximity of the ball field to the river is a concern to us also. Whatever park project occurs must be in compliance with the standards of the Department of Fish & Game who will establish the minimum distance that the improvements must be from the top of bank.

I find it hard to believe the destruction of the Napa Riverbank was/is "in compliance" with the requirements for a threatened/endangered steelhead/salmon spawning river in California

PM 12-24-18

We are planning to have preliminary meetings about the park with concerned groups and citizens. We would like to have some alternatives for them to look at as they express their concerns. These meetings will be followed by public hearings before the Planning Commission and the City Council for approval of a Use Permit for the park. No meetings have been scheduled yet, but we will notify you when they are.

Please call me at 963-2741 if you have any other questions.

Yours truly,

Carol Poole
Assistant City Planner

I was on this committee. My input and concerns were ignored. PM 12-24-18

(Planning/98.Projects/98-74/Mennen)

B3-2

LAW OFFICES OF

JAMES R. ROSE

1500 RAILROAD AVENUE
ST. HELENA, CALIFORNIA 94574
ROSELAWINC@SBCGLOBAL.NET

TELEPHONE: (707) 967-96
FACSIMILE: (707) 963-07

JAMES R. ROSE
KATHARINE HELDT FALACE

May 1, 2009

CONFIDENTIAL

Peter Mennon
P.O. Box 421
St. Helena, CA 94574

Re: ***Fulton Lane Residents v. City of St. Helena***

Dear Peter:

To keep you apprised on how this case is developing, we have been fortunate to obtain two engineers who we have consulted with who have reviewed the construction drawings for the flood mitigation project in question. Fortunately, both engineers have identified errors in calculations and errors in assumptions that the City engineers relied upon. That is enough for us to initiate a lawsuit. Also, fortunately there is a ten year statute of limitations on any defective design cases. Since this is clearly a defective design, we don't have to worry about some of the limitations' issues that we were dealing with on some of the other causes of action.

We hope to have a lawsuit filed no later than mid next week with the assistance of our new engineers. I will keep you apprised as matters develop. Since you are part of the citizen's group involved in this action, we continue to have a confidential relationship and your identity will be treated as such.

Thank you again for all your assistance in this matter. I would like to possibly meet with you and Sampson early next week to give you a final once over before we file the action. Please call with any questions.

Very truly yours,

THE LAW OFFICES OF JAMES R. ROSE

JAMES R. ROSE

City of St. Helena
"We will conduct city affairs on behalf of our citizens using an open and creative process."

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St. Helena, CA 94574
Phone: (707) 967-2792
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B3-2

February 25, 2016

To the City of St. Helena
Please use all this
in your file of comments
on the [illegible] 2018
EIR
12-24-18

Mr. Peter Mennen
P.O. Box 421
Saint Helena, CA 94574

Dear Peter,

I wanted to let you know that I received the materials you delivered to City Hall on January 28, 2016 related to the Flood Control Project.

I know this was and continues to be a controversial project for the citizens of St. Helena. My goal in hiring a forensic accountant is to review the revenues and expenditures related to all the projects in an effort to ensure all the funds are accounted for and were properly spent in accordance with contractual obligations. Although the scope of the review does not include engineering, environmental or other aspects of the projects, I will add your documents to the file and make them assessable to the forensic accountant.

Sincerely,

Jennifer Phillips
City Manager

Wed, Feb 10, 1904 3:37 AM

B3-2

From: Big Ricki <bigricki@earthlink.net>
Date: Wednesday, February 10, 1904 3:37 AM
Subject: Flood control Technical Report

for 2018 EIR
12-24-18

Peter Mennen
PO Box 421
St. Helena CA
94574
March 15, 2002

Mike Praul, City Engineer
City of St. Helena
1480 main Street
St. Helena CA 94574

Dear Mr. Praul:

I was one of those selected to participate in the proposed design of a flood control project to be carried out using "Measure A" money that would reduce the impact of flooding on the community of St. Helena. As a bit of history, Measure A was passed by the voters of Napa County as a method of achieving flood control in ways that would be considerate of the biological integrity of the Napa River, as opposed to a flood control design proposed by the Army Corps of Engineers, which was rejected by the citizens of Napa County because it was destructive to river values.

A county wide community group which named itself "Friends of the Napa River" pulled together and began an extraordinary effort to rethink the way in which flood control could be designed so that the Napa River would benefit from sophisticated flood control methods that would help the river regain some of its former behavior in the days before we hedged it in and destroyed its ability to spread out into a flood plain during heavy rain events. This would be done in ways sensitive to the ecological values of napa River. This Measure A funding came to pass by a two thirds vote of the county because of the incredible work Friends of the Napa River did to educate county citizens of the way in which flood control could be handled in ways that would improve the beauty and functionality of napa river, which as you know has been declarted an impaired waterway by Congress, due to the many damaging alterations we have wreaked upon the river in the past hundred years.

I was selected to as a participant in the St. Helena process to represent the vision of Friends of Napa River, to assure the local plan would incorporate the standards for flood control that were integral to any project that would be put forward. After all, a river-friendly design was the whole impetus for Friends of the Napa River to do the extraordinary work that made measure A come to pass.

Regrettably, I found myself marginalized as the planning process went on, and I can recall at least one specific incident where i was told the concept of retaining a tree-lined riparian corridor along the river bank would be an impossible, and then later I learned this devestating concept was built into the design with the justification that, since i had not objected to it, Friends of the River must think it was okay. Toward the end, i was not even notified of upcoming meetings of the St. Helena flood design group, much less invited to participate in the role of a "Friends of the Napa River" advisor. I only learned after the fact that a meeting had taken place, when someone questioned me about why I was no longer attending.

Finally, after the committee agreed upon a proposed design without even an opportunity for "Friends of the Napa River" to have me participating in the proposal that went forward to the city, you were kind enough to give me a copy of the plan. I sent that copy to "Friends of the Napa River," who made the attached comments and sent thaem back to you on February 22, 2002. I am writing this letter just so that I can have some input into the process now, having been excluded in a manner I believe is illegal, and thus depriving "Friends of the Napa River" to have any legitimate input, or even an opportunity to review, the proposal before it was submitted to the St. Helena City Council. Since I

Wed, Feb 10, 1904 3:37 AM

B3-2

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And not surprisingly, the fundamental design vision of all the possible proposals for flood reduction in St. Helena is antithetical to any kind of living river vision. In each of the possible projects, the riparian corridor along the river is utterly sacrificed, destroying any number of critical aspects of the living river vision. there are many mature and even landmark-sized, "heritage" trees within St. Helena city limits along the Napa River which, I am only now told, will be deliberately left in a narrow, eroding ridge between the current rivercourse and a new floodplain beyond the existing riparian corridor. I am informed that it is understood and expected that the entire riparian stand along both banks of the Napa River within St. Helena city limits will be destroyed over a short period of time as the river cuts into the banks and causes all those trees to come crashing down, leaving nothing of their shade protection for the river all along the banks of the river. In their place will be a great, vacant swath of little or no biological value, at a terrible price to the river. This is a mockery of the real measure A, which was to enhance the river's values as a part of flood control, not destroy them.

Also, a multitude of other benefits, beyond the loss of all their beauty to all of us citizens, will be lost. Many of those trees are mature oaks, whose wildlife value cannot be overestimated. they are the lynchy-pin of biological integrity along the river, and most of them already have been lost to human development. To deliberately destroy these last precious corridors of mature oaks and complex vegetation is intolerable and unacceptable. It is in direct defiance of the driving concept of Measure A. It makes our plan a farce. Just for your improved understanding of the value of oaks, I am including a copy of an excellent book on the complexity and value of oak trees entitled "The Life of an Oak." It was produced by the California Oak Foundation, with major funding from, among others, the Mennen Environmental Foundation. Perhaps you and others will gain some perspective on what you are attempting to throw away.

Measure A was not passed so that a few interest groups in Napa County could benefit at the expense of tremendous tax costs to the rest of us and the sacrifice of the Napa River. It was not put forward so that local politicians could make a lot of hay on its back by corraling a clot of special interest votes and make self-serving claims on campaign literature when they ran for larger office. Measure A had far loftier goals of spending our tax money to benefit both people and the Napa River, and that is the Initiative we as a county passed. St. Helena's Measure A oversight committee has unconscionably distorted the very heart of the "lving river" intent of the measure whose county tax money they (we?) were expected to spend in an appropriate way.

The Mennen Environmental Foundation has purchased acreage on Sulphur Creek to restore in a manner that will benefit flood control and biological values. Our expert evaluators have proposed solutions that are diametrically opposed to the proposal being forwarded to the City of St. Helena by the oversight committee. I absolutely wash my hands of the disgraceful and shameful set of proposals that "my" committee has certified for your consideration and acceptance. I am appalled. I am certain Friends of the Napa River would not touch these proposals with a ten foot pole. They are a joke- a slap in the face to everyone who put his/her heart and soul into bringing Measure A to fruition.

Sincerely,

Peter Mennen

CCs: Friends of the Napa River
St. Helena City Council

Received on 3-13-02 - Comment made on 3-15-02

B3-2

STAFF REPORT

APPROVED FOR
CITY COUNCIL AGENDA
DATE: 3/7/02
CITY MGR:

The envelope says the city mailed this on 3-8-02 Never received this material until after 3-12-02 I could not comment by 3-12-02

DATE: March 12, 2002

TO: City Council

FROM: Myke Praul, City Engineer MP

RE: Clarification of Council Direction on Comprehensive Flood Study Environmental Impact Report

Cc: City Manager

BACKGROUND:

The environmental consultant for the Comprehensive Flood Study, CDM, has initiated the public input process to facilitate preparation of the draft environment impact report. At the Council meeting initiating this process, the Council directed staff to analyze three plans; the no action plan, the Minimum Plan and the Enhanced Minimum Plan. In response to a question by a member of the public, the Council also directed staff to analyze a plan that combined the extension of Adams Street with the Minimum Plan. Staff now presents the results of that analysis and requests clarification of the Council's prior direction.

FOR 2018 EIR PM 12-24-18

DISCUSSION/ANALYSIS:

As the Council recalls, the Enhanced Minimum Plan (EMP) was a compromise alternative between the Maximum Plan (MaP) and the Minimum Plan (MiP). The MaP reduced the 100-year water surface elevation (WSE) 3.1 feet at the Hunt's Grove Apartments but required the relocation of 60 homes within the Vineyard Valley Mobile Home Park (Park). It included a fill area to the north of the Park on which the relocated homes would be placed. The MiP reduced the WSE 1.6 feet at the same location with the elimination of 17 spaces and loss of approximately 7 to 8 existing homes. The existing floodwall would have to be raised approximately 3.5 feet or a new levee constructed to the north of the wall at the same elevation. The EMP was developed as a compromise to the two distinctly different plans. It would reduce the WSE 2.4 feet and includes the relocation of 29 homes to the vineyard area north of the Park which would be flood proofed by the roadway embankment of an extension of Adams Street. The Council asked what is the feasibility of combining the Adams Street extension with the MiP.

MBK has computed the hydraulic benefits of a plan that would include the Adams Street extension but with the river terracing of the same area as the MiP, or the loss of 17 spaces within the Park. The resulting reduction of the 100-year WSE is about the same as the MiP, which is one foot less than the EMP. The elevation of the roadway embankment would need to be the same height as the levee north of the floodwall or about 3.5 feet above the elevation of the existing wall, a foot higher than the EMP.

Staff and the consultants believe that the environmental impacts of this revised alternative would be somewhere between the EMP and the MiP. While it would require a larger footprint than the

MiP, the structural elements would be very similar with impacts to the Park residents also being very similar as the MiP.

B3-2

IMPACT:

Further analysis of this hybrid alternative will take additional time and funding. At the last Council meeting, representatives from the VVMHP Homeowners Association presented a petition in support of the EMP, which was signed by approximately 90% of the residents of the Park. The revised alternative would still eliminate some homes in the Park where the EMP would not.

FISCAL IMPACT:

Staff will return to Council at the meeting of March 26, 2002 to discuss the current financial status of the study and bring recommendations to extend the consultant agreements with the funding requests necessary to complete the study. Confirming the above direction will reduce the amount of analysis required for the EIR.

ALTERNATIVES:

1. Confirm prior direction to staff and the consultants to analyze the No Action, Minimum and Enhanced Minimum Plans through the EIR process.

2. Direct staff and the consultants to include a fourth alternative for further environmental analysis that combines the Minimum Plan with the Adams street extension.

RECOMMENDED COUNCIL ACTION:

Staff recommends that the Council confirm the prior direction to staff and consultants to analyze the No Action, Minimum and Enhanced Minimum Plan through the environmental review process.

ATTACHMENTS/EXHIBITS

None.

00147

B3-2

I did not receive this until after 3-12-02 P.M. I could not comment by 3-12-02.

For 2018 ELR PM 12-24-18

Mayor : Ken Slavens
Vice-Mayor: Frank Toller
City Council: Joe Potter
Bill Savidge
Sampson Bowers

AGENDA
REGULAR MEETING
ST. HELENA CITY COUNCIL
CARNEGIE BUILDING COUNCIL CHAMBERS
1360 OAK AVENUE, ST. HELENA
MARCH 12, 2002
6:45 P.M. CLOSED SESSION
7:00 P.M. REGULAR SESSION

Prior to the meeting the public may review available information at City Hall or at the George and Elsie Wood Public Library.

A person who is dissatisfied with a decision of the City Council may have the right to a review of the decision by a Court. The City of St. Helena has adopted California Code of Civil Procedures Section 1094.6, which generally limits to ninety (90) days the time within which a decision of the City Council may be judicially challenged. If a person challenges a decision in Court, he or she may be limited to raising only those issues that were raised at the Public Hearing described in this notice, or in written correspondence delivered to the City Council at, or prior to, the Public Hearing.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact City Hall, (707) 967-2792. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting (28 CFR35.102-35.104 ADA Title II). However, City staff will attempt to assist at any time with accessibility. The City Clerk has equipment to assist those with a hearing impairment.

The City Council will convene in Open Session at the stated time, but will then adjourn to any Closed Sessions(s) listed on the agenda. The Council will reconvene in Public Session at 7:00 p.m. at that time, if appropriate, any actions taken during the preceding Closed Session will be announced. If necessary, the Council may reconvene in Closed Session to continue discussion of listed items following the completion of other business.

****

I. 6:45 P.M. CLOSED SESSION
7:00 P.M. OPEN SESSION

Conference with City Negotiator – City Manager
Negotiations with Unrepresented Employees (Department Heads)
and St. Helena Employees Association (SHEA)
Brown Act: 54957.6

PLEDGE OF ALLEGIANCE

1. **ROLL CALL**

2. **APPROVAL OF MINUTES** – January 29, 2002 and February 26, 2002

3. **REPORTS BY STAFF AND CITY COUNCIL:** Reports by staff and/or Councilmembers on items of general interest or action taken during Closed Session. Brief questions for clarification may be posed and answered, and Councilmembers may request that items be placed on a future agenda. Except under certain circumstances, the Brown Act prohibits any other discussion or action by the City Council.

4. **PUBLIC FORUM:** An opportunity for the public to directly address the Council on items of interest to the public not on the agenda. Any person addressing the Council is subject to the requirement of providing his or her name and address, and limiting comments to five minutes. Because of restrictions imposed by the Brown Act, the Council may not engage in substantive discussion, nor take action on matters not described on the agenda.

5. **PRESENTATIONS AND PUBLIC RECOGNITIONS**

   - Presentation by Jill Pahl, Upper Valley Agency Waste Management, Re: Solid Waste Rate Adjustments

II. CONSENT ITEMS: Members of the Council or the public may ask that any items be considered individually for purposes of considering alternative action, for extended discussion, or for public comment. Unless that is done, one motion may be used to adopt all recommended actions.

6. Planning Commission Actions of March 5, 2002 *Recommended Action:* Approve

7. Accounts Payable and Payroll *Recommended Action:* Approve

8. Resolution Approving Hanging of a Banner Across Main Street Promoting the Calistoga Education Foundation Spring Benefit Auction
   Recommended Action: Adopt

9. Park and Recreation Minutes of February 25, 2002
   Recommended Action: Note & File

10. Report from City Manager Re: City's Emergency Managers Attending Integrated Emergency Management Course (IEMC) *Recommended Action:* Note and File

11. Resolution Establishing a Voluntary Contribution Check-off Program by Supporting "Action for Better Cities" (ABC) *Recommended Action:* Adopt

12. Resolution Accepting Offsite Improvements by Robert & Katherine States Burke Trust at 2995 Spring Street and Authorization to File Notice of Completion
Recommended Action: Adopt

13. Resolution Authorizing a Professional Services Agreement with Oswald Engineer Associates for Design, Environmental Review and Permitting of the Recycled Water Project
Recommended Action: Adopt

14. Resolution Approving a Budget Appropriation for the Purchase of a Street Sweeper
Recommended Action: Adopt

III. PUBLIC HEARINGS (Since Public Hearings do not begin before 8:00 p.m., Scheduled Matters listed below may be considered before that time.)

15. City Council Appeal of Planning Commission Approval of Request of the Wine Service Co-op for a Tentative Parcel Map to Divide an Existing 7.8 Acre Parcel Located at 1150 Dowdell Lane, on the East and West Side of Fountain Avenue between Dowdell Lane and Mills Lane, into Two Parcels of 5.9 Acres and 1.9 Acres with an Offer of Dedication for Land for the Future Extension of Fountain Street and Realignment of Mills Lane (APN 009-660-003) (Exempt from CEQA) (Planning Director)

16. Request of Julian Inman, Representing Jack and Diana Varozza, to Rezone Property from A-20: Twenty Acre Agriculture to A-20: HP: Twenty Acre Agriculture with a Historic Preservation Overlay. The Application also Includes a Request for a Use Permit and Design Review to Refurbish a Historic Winery Building and to Operate a 20,000 Gallon Small Winery at 514 Pratt Avenue (Planning Director)

17. City Council Preliminary Review of Proposed General Plan Amendment Pursuant to Chapter 26 of the St. Helena Municipal Code as Initiated by Kevin Twohey to Process an Application to Change the Land Use Designation for the Property Located at 738 Main Street from Office to Service Commercial to Allow the Operation of Whiting Nursery on the Project Site (Planning Director)

IV. SCHEDULED MATTERS (Since Public Hearings do not begin before 8:00 p.m., Scheduled Matters listed below may be considered before that time.)

18. Request for Direction Re: Environmental Review of Comprehensive Flood Study (Public Works Director)

19. City Council Discussion of Modifications to Bed and Breakfasts Ordinance (Planning Director)

20. City Council Discussion of Moratorium on Small Winery Applications (Planning Director)

21. Request for Reconsideration of Council Action of February 26, 2002 Regarding Request of Peter Story for a Use Permit and Design Review at 100 Pratt Avenue (Councilmember Bowers)

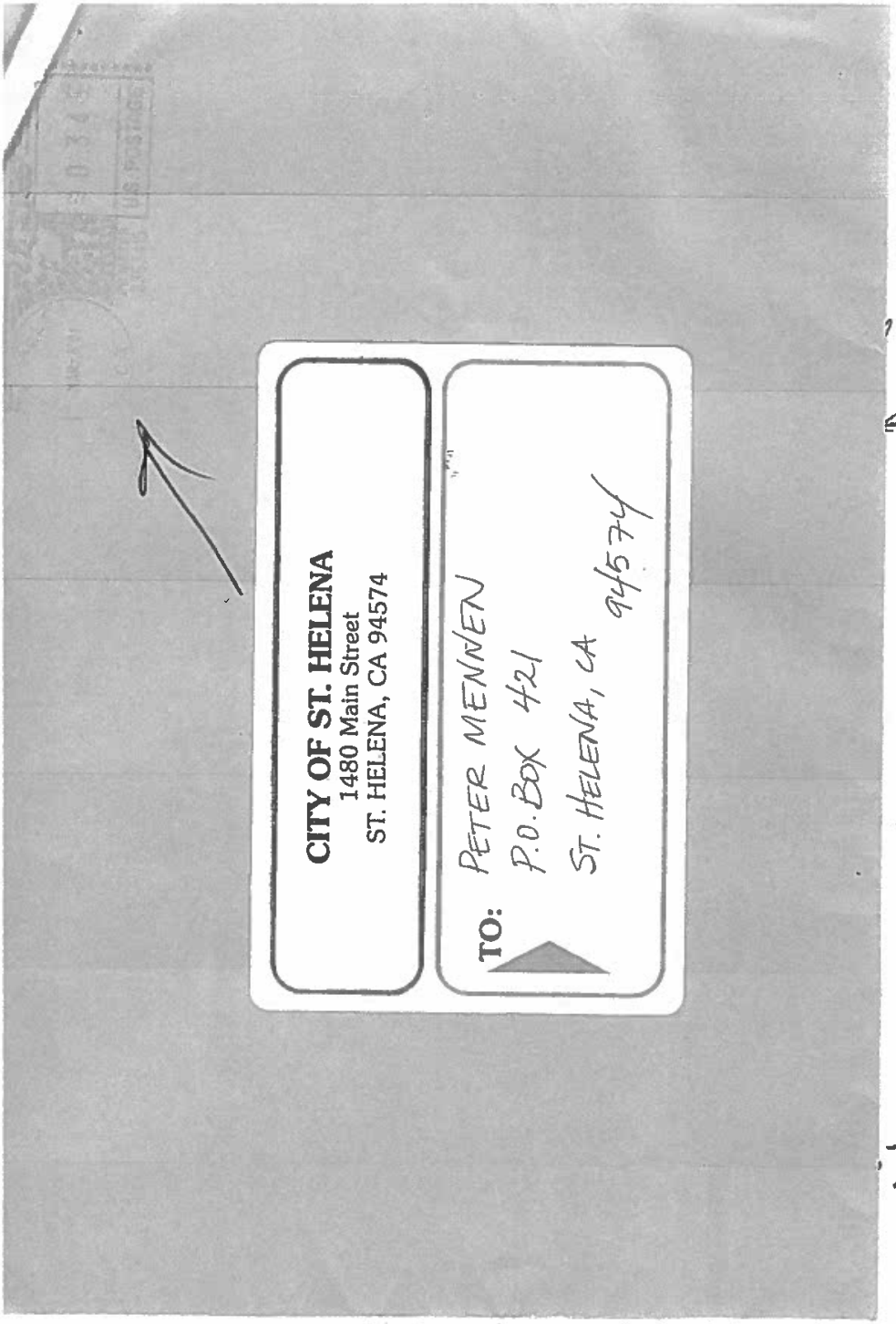
V. ADJOURNMENT

The next Regular City Council meeting is scheduled for March 26, 2002 at 7:00 p.m. in the Carnegie Building. This agenda was posted at City Hall, 1480 Main Street, St. Helena, California, at 3:00 p.m., Friday, March 8, 2002.

Delia Guijosa, City Clerk

001

B3-2



site

erns!

7-8/58

5/02 MON 13:59 FAX MALAN 001

Hi Peter,

for 2018 EIR
PM. 12-24-18

B3-2

We went on site
+ had these concerns!

Chris

967-8158

B3-2

Friends of the Napa River
68 Coombs St. Bldg B • Napa, CA 94559
Phone (707) 254-8520 • Fax (707) 254-8547
naperiv@aol.com • www.napanet.net/fonr

February 22, 2002

Myke Praul, City Engineer
City of St. Helena
1480 Main Street
St. Helena, CA 94574

Re: **Napa River Near St. Helena Technical Report for Hydraulic Analysis Results Prepared by: MBK as of November 27. 2001**

Dear Mr. Praul:

Friends of the Napa River would like to comment on the Technical Report by MBK in response to Scoping for an EIR pursuant to CEQA requirements. We appreciate the opportunity to provide early information through the public process to a Measure A project that must comply with the ***'Living River Guidelines'*** approved by the voters of Napa County.

The Technical Report lists three different plans to the St. Helena Flood Control project:
A. The "Non-Structural Plan" (NSP)
B. The "Minimum Plan" (MP)
C. The "Enhanced Minimum Plan" (EMP)
D. The "Maximum Plan" (MxP)

Friends of the Napa River have serious concerns and many questions with the plans B, C and D. We find the "Non-Structural Plan" the least intrusive and most in line with the 'Living River Guide Lines.'

To better understand the implications of the other plans, we would like the following questions answered and documents provided for public review:

1. The massive excavations of plans MP and MxP will create islands in the Napa River riparian corridor. Questions:
    a. Is this compliant with the 'Living River Guidelines'?
    b. How many native Valley Oak trees will be lost?
    c. How much riparian vegetation will be removed from the banks and the bed of the Napa River? What is the re-vegetation plan? What is the maintenance cost?
    d. How much erosion will occur in tons/year?
    e. What will this do to anadromous spawning gravel down stream?
    f. How will this change the bank and channel of the Napa River?

B3-2

g. What are the upstream and downstream erosion effects?
h. How will the loss of riparian vegetation and riparian function effect temperature in the Napa River?
i. How high will the temperatures get in the Napa River during the hot summer months due to loss of riparian vegetation?
j. When is it expected that the riparian cover is recovered / rebuild?

2. The initial excavations in plans MP and MxP seem to be enormous. Questions:
   a. What is the number of cubic yards (or tons) of excavation material?
   b. What is the destination of the spoil/other material resulting from excavation?
   c. Will the City of St. Helena be creating new housing locations with the excavated material and cane Measure A money be used for this?
   d. Would such new housing locations be growth inducing?

3. There will be cut down areas in the riparian zone (called flood terraces). Questions:
   a. How much aggradation will occur in the new excavated area?
   b. How many tons per year of sediment excavation/maintenance will need to be done?
   c. Where will the maintenance spoils/sediment be disposed?
   d. How will new riparian vegetation be protected in this area?
   e. What are the maintenance costs associated with this?

4. Could you provide the public with a map that shows the existing flood plain and the existing floodway?

5. What will the increased stream velocity be in the Pope Street Area?

6. In MP and MxP, steep bank formation will be creating a step-function. Questions:
   a. What is the associated erosion factor to this change in banks of the Napa River?
   b. What are the costs of maintenance of these banks and where will the money come from when Measure A money sunsets?
   c. Is this compliant with Measure A 'Living River Guidelines'?

7. What is the upstream flooding impact of the proposed Adams street extension and causeway?

8. Please detail the effects any of the plans would have on Sulphur Creek.

Sincerely

Bernhard Krevet
President, Friends of the Napa River

Fri, Jan 8, 1904 9:10 AM

B3-2

From: Big Ricki <bigricki@earthlink.net>
Date: Friday, January 8, 1904 9:09 AM
Subject: Flood control Technical Report

for 2018 EIR

PM 12-24-18

Peter Mennen
PO Box 421
St. Helena CA
94574
March 15, 2002

Mike Praul, City Engineer
City of St. Helena
1480 main Street
St. Helena CA 94574

Dear Mr. Praul:

I was one of those selected to participate in the proposed design of a flood control project to be carried out using "Measure A" money that would reduce the impact of flooding on the community of St. Helena. As a bit of history, Measure A was passed by the voters of Napa County as a method of achieving flood control in ways that would be considerate of the biological integrity of the Napa River, as opposed to a flood control design proposed by the Army Corps of Engineers, which was rejected by the citizens of Napa County because it was destructive to river values.

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3-15-02

Fri, Jan 8, 1904 9:10 AM

B3-2

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Sincerely,

P.M. Peter Mennen

Peter Mennen

CCs: Friends of the Napa River
St. Helena City Council

Note dated march 25, 2002. There is an inaccurate statement in the above letter, which I did not catch because I did not proofread the letter before running it over to the City shortly before City hall closed for the night on 3/15/02. In the above letter, I should have said I was told during a meeting of the oversight committee that it would not be appropriate to plant shrubbery in the riparian

B3-2

Friends of the Napa River

The Landmarks Building
1026 First Street • Napa, CA 94559
Phone (707) 255-8646 • Fax (707) 255-2164

10/5/97

For 2018 EIR
PM. 12-24-18

St. Helena Planning Commission
St. Helena, CA 94574

RE: Napa River Bridge Alternatives

Dear Commissioners:

Friends of the Napa River, as you know, is concerned that community action today safeguard the long-term health of the Napa River. Specifically, we are concerned that the placement of the new Pope Street bridge to cross the Napa River will have significant impacts on river stability and of great concern to St. Helena's dense build-out along the river, have an impact on flooding. We acknowledge the need for a new bridge and perhaps the impacts will only be positive, but it is better to ask the questions now rather than later.

The Alternative A is of particular concern as the abutment for the West side of the bridge is in the floodway of the Napa River, possibly backing the water up in an area where there are many variables to consider, not the least of which is residential. The abutment on the West side sits on Stonebridge Park, a park that carries flood waters at times. Placing a cement dam there would force water elsewhere. The bridge would have to be longer with a causeway to allow the passage for that water in an area that seems ill suited for it.

Alternative A has other problems associated with the troubled area it would be placed into: that is the confluence of Sulphur Creek and the Napa River, and upstream from the historic Pope Street Bridge that is a constriction in the river. It is not yet known what the cumulative effect of the increased flow and velocity of the stormwater runoff from the new developments along Sulphur Creek is going to be during heavy rains.

We have briefly consulted an hydraulic engineer who has done a complete computer analysis of the Napa River at that very point and would be able to plug in the variables to make sure Alternative A would not have the problems it does appear to have and to compare them with the other alternatives. He suggested that bridges have backflow problems that have to be considered carefully. We have learned in our education about river systems that you can not tell how things are until the numbers are run. On page 19 of your report you suggest the hydraulic scour evaluation would be conducted during the final design phase of the project. Suppose at that time the numbers don't come out well for Alternative A? Why not do the modeling now so the citizens can see what the options are and rest assured there will be no additional flooding or scouring problems with any of the alternatives? This would allow them to support a more informed decision.

We are enclosing the name and address of the engineer who has the computer model of this stretch of the river.

Respectfully submitted,

Dear Peter -
Please call me
Num # 258-8762
[illegible]

Friends of the Napa River

Address of Philip Williams & Associates
c/o Vince Neary, Pier 35-The Embarcadero
San Francisco, CA 94133

Comment Letter B4-A

City of St Helena, City Hall
Received
DEC 27 2018
1480 Main St.
St Helena, CA 94574

December 27, 2018

Noah Housh, Planning Director
City of St. Helena
1480 Main Street
St. Helena, CA 94574

Re: Draft Environmental Impact Report Chapter 3.7-1 and 3.8-1

Dear Noah,

My commendations on excellent maps in the sections above. However, some of the information is not current, such as the USGS Fact Sheet relied on from 2000 has been replaced by the USGS Fact Sheet from December 2014. These areas should be re-written to reflect current statistics and realities. A copy of the 2014 Fact Sheet with predictions is enclosed.

If the drafters of the EIR would like to consult further on seismic and fault issues related to West Napa Fault, the two authorities are Belle Philibosian, Research Geologist of the Earthquake Science Center who is actively involved in pit studies of the West Napa Fault from St. Helena to beyond Calistoga. Belle can be reached at 650-329-4784 or by cell phone at 626-344-9159. Belle's e-mail address is bphilibosian@usgs.gov. The State Geological expert studying the West Napa Fault who has also traced with USGS its presence running through St. Helena and Calistoga to a length of 45 miles is Professor Michael Oskin, Chairman of the Department of Geology, U.C. Davis. Dr. Oskin also served the USGS and provided a map attached from December 2014 that shows seismic activity running the length of the valley on the "west" side of Hwy. 29. In other words, the fault does not stop at the south border of St. Helena and there are several published sources I've provided verifying this. There are also visible fault damaged areas from the 2014 Napa earthquake.

A website that should be viewed by the preparers of the draft EIR is easily found using google. Enter "Hayward Fault Shake Map" where three "break points" are given showing magnification of damage from a 7.0 quake along that fault. If the fault breaks in Fremont or Oakland, St. Helena is in for a greater than 8.0 quake. So please take this seriously, since the probabilities are so high of one or more events of 6.7 or greater (72%) than noted in the

B4-A-1

B4-A-2

B4-A-3

current draft EIR with its outdated materials. Again, I've attached information about this.

B4-A-3

The characterization made that St. Helena has less problems, otherwise there would be an Alquist-Priolo Map is inaccurate. The State Geological Survey is years behind and under-funded, thus the State's Gegological Survey group selects studies based on population densities. This can be verified by Richard who handles maps for California Geological Survey in Menlo Park. Since Yountville, St. Helena and Calistoga are smaller and more rural than Napa, the CGS focus was American Canyon and Napa, and there were no funds and less priority for the State to complete maps for the upper part of the valley due to smaller populations compared to many other areas of the state waiting in line for updated Alquist-Priolo Maps. As CGS told the press ("San Francisco Chronicle"), we have a 300 year backlog given the meager funding provided for development of Alquist-Priolo Maps."

B4-A-4

I don't believe the stark probabilities of a problem from a break in the West Napa Fault should be hidden from view. Burying one's head in the sand leaves people victims of their own city personnel's biases that are not founded on reality.

B4-A-5

The drafters of the EIR should also include in their references the State Guidelines for Seismically Active Area from 2008: "Special Publication 117A" and update their descriptions and systems as well, based on this Publication. I am sorry to see the EIR writers are so far removed from updating their records, relying on 2000 data for the most part from both the USGS and State GS. I provided you with a copy of this Publication for use by residents. Perhaps you can share it with the EIR preparers so they can update this chapter.

B4-A-6

I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is described as Seismically Active, I believe a description should include this reality.

B4-A-7

Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is a firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards. As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern are ornamental fire walls like the one at Hall Winery on the second floor in their tasting room.

B4-A-8

B4-A-9

Thank you for this opportunity to comment.

Sincerely,

Lois Ann Battuello

Lois Ann Battuello

Enclosures - USGS updates and seismic facts from historic reports

CC: Paul Dohring, Council
Mary Koberstein, Council

B4-A-10

https://earthquake.usgs.gov/learn/topics/shakingsimulations/hayward/M7.0.php

Earthquake "Shake" Map for breaks on the Hayward Fault - 3 scenarios of shaking intensities for a 7.0 M quake - San Pablo Bay (almost no affect on Napa County), Oakland (serious affect on Napa County), and Fremont (extreme shaking and most serious affect on Napa County).

In the foregoing scenarios, note that the location furthest away, Fremont, would produce the most damage in Napa County. This is similar to the effect of the quake in 2017 in Mexico city, where the origin was 65 miles from Mexico City but the shaking and magnitude of the quake increased and was most severe in Mexico City.

Another way to get to Hayward Fault info: Use Google.com, type in Hayward Fault Shake Map and there's as USGS link on the index that is generated.

B4-A-10

AN ANALYSIS OF BAY AREA EARTHQUAKES AND USGS FORECASTS

The USGS has been accurate in its 30-year forecasts, as there has been at least one 6.0 M quake or greater within their set timeframe since 1959. Prior to that, there was only one quake just under 6.0 M from 1906 forward. This information is from the "List of Earthquakes in California" (Google the term and look for the Wiki link) and historic USGS forecasts (Google "Earthquake Outlook for San Francisco Bay Region 2014-2043).

Each time there is a 6.0 or greater quake, a new 30-year forecast has been made by USGS. Here are the differences since Napa's 8/24/14 earthquake:

(1) Probabilities have moved from 72% to 98% for a quake of 6.0 M or greater for the first time. Before: Probabilities were 72% or 70%

(2) USGS in 2014 increased the probabilities to include one "or more" events as shown in their Earthquake Outlook for the first time

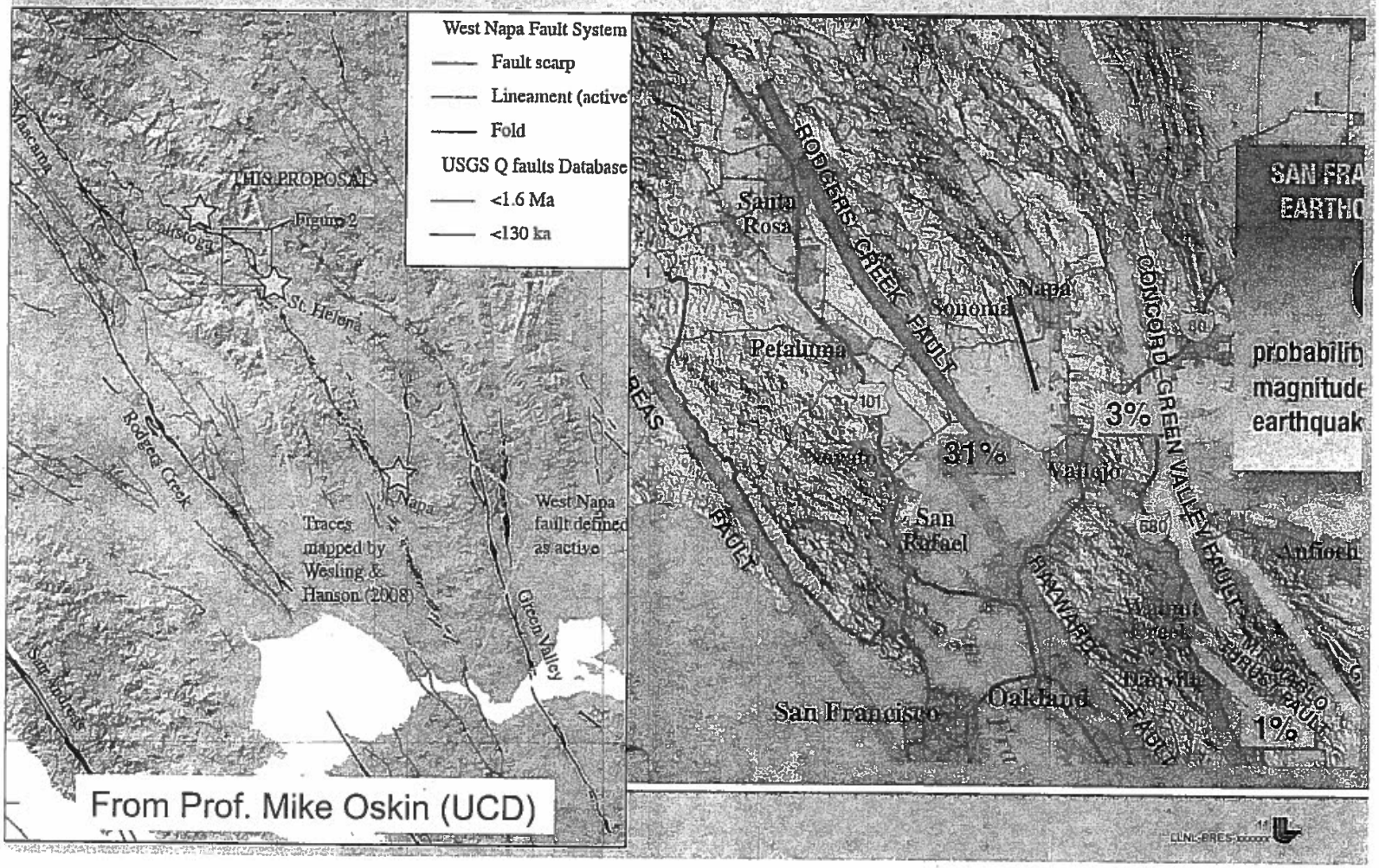
(3) USGS now adds the 72% probability of a 6.7 M or greater. This is the first time there has been a forecast probability for a 6.7 M or greater event.

All of this is new data since the Napa Earthquake of 8/24/14. The West Napa Fault erupted for the first time in 11,000 years to 45 miles in length.

We are more seismically active, as faults are building pressure, and are occurring within shorter time-frames. Hence the probability is 98%.

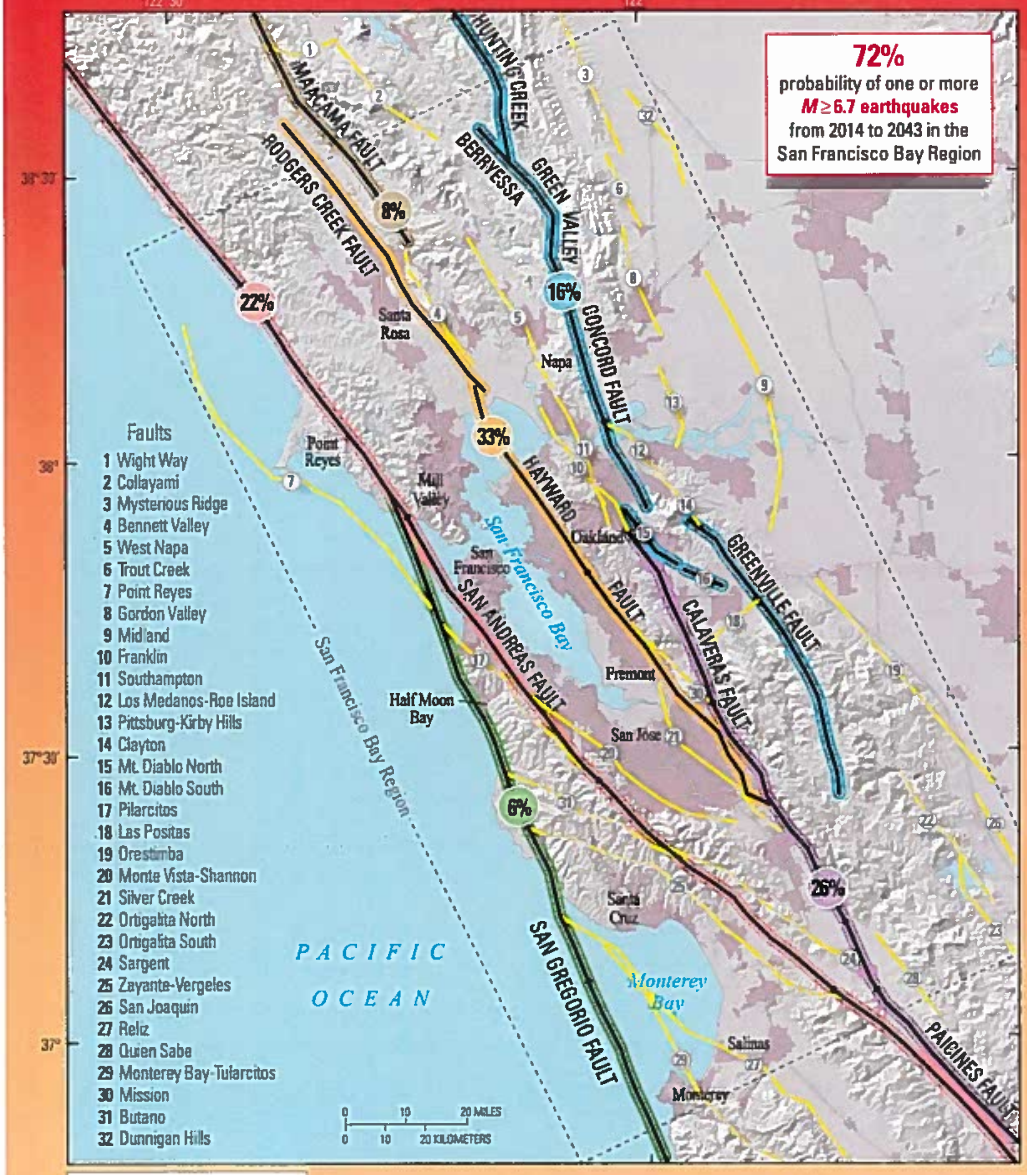
Since 1868, there have been four major earthquakes in San Francisco and the North/East Bay Area that have been felt in Napa: 1868 Hayward; 1906 San Francisco; 1989 Loma Prieta; 2014 West Napa. Three of the four occurred at night when people were in their beds between 1:20 a.m. and 5:19 a.m. Loma Prieta broke at approximately 5:00 p.m. Three of the four occurred just before or just after the Fall Equinox (Sept.). Only the San Francisco Earthquake of 1906 occurred just weeks after the Spring Equinox (Mar.) on April 18, 1906.

The West Napa Fault was identified as active, capable of M 6 event



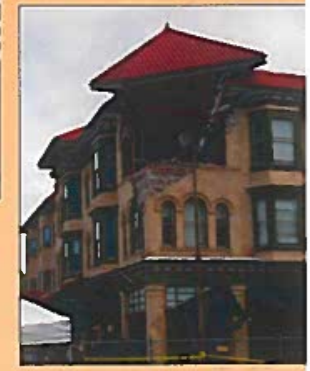
USGS
science for a changing world

Earthquake Outlook for the San Francisco Bay Region 2014–2043



Map of known active faults in the San Francisco Bay region. The 72 percent probability of a magnitude 6.7 or greater earthquake includes the well-known major plate-boundary faults, lesser-known faults, and unknown faults. The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043. The probability that a magnitude 6.7 or greater earthquake will involve one of the lesser-known faults is 13 percent.

Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California. They concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043. Earthquakes this large are capable of causing widespread damage; therefore, communities in the region should take simple steps to help reduce injuries, damage, and disruption, as well as accelerate recovery from these earthquakes.

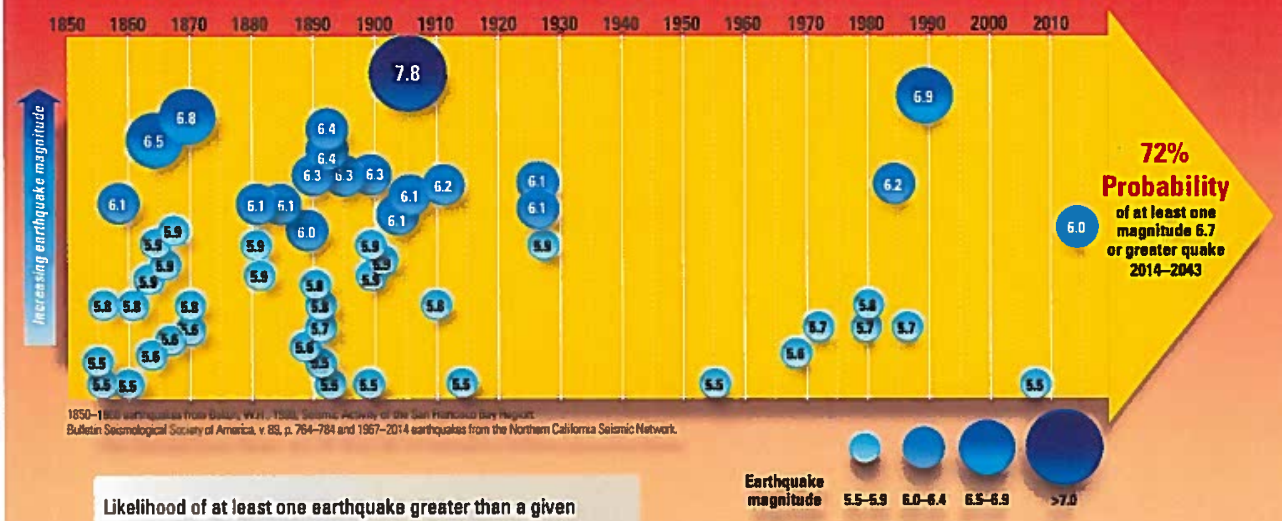


Building damaged in 2014 South Napa earthquake. Photograph by Erol Kalkan, U.S. Geological Survey.

U.S. Department of the Interior
U.S. Geological Survey

Fact Sheet 2015–3020
Revised August 2016 (ver. 1.1)

San Francisco Bay Region Earthquake Timeline



1850–1[illegible] earthquakes from Bolen, W.H., 1[illegible], Seismic Activity of the San Francisco Bay Region: Bulletin Seismological Society of America, v. 89, p. 764–784 and 1967–2014 earthquakes from the Northern California Seismic Network.

Likelihood of at least one earthquake greater than a given magnitude in the San Francisco Bay region between 2014 and 2043.

Magnitude (*M*)	30-year likelihood of at least one earthquake in the San Francisco Bay region
$M \geq 6.0$	98 percent
$M \geq 6.7$	72 percent
$M \geq 7.0$	51 percent
$M \geq 7.5$	20 percent

Timeline of magnitude 5.5 and greater earthquakes in the San Francisco Bay region 1850–2014. In the 50 years prior to 1906, there were 13 earthquakes with a magnitude between 6 and 7, but only 6 earthquakes of similar magnitude in the 110 years since 1906. The rate of large earthquakes is expected to increase from this low level as tectonic plate movements continue to increase the stress on the faults in the region.

Earthquake Preparedness Helps

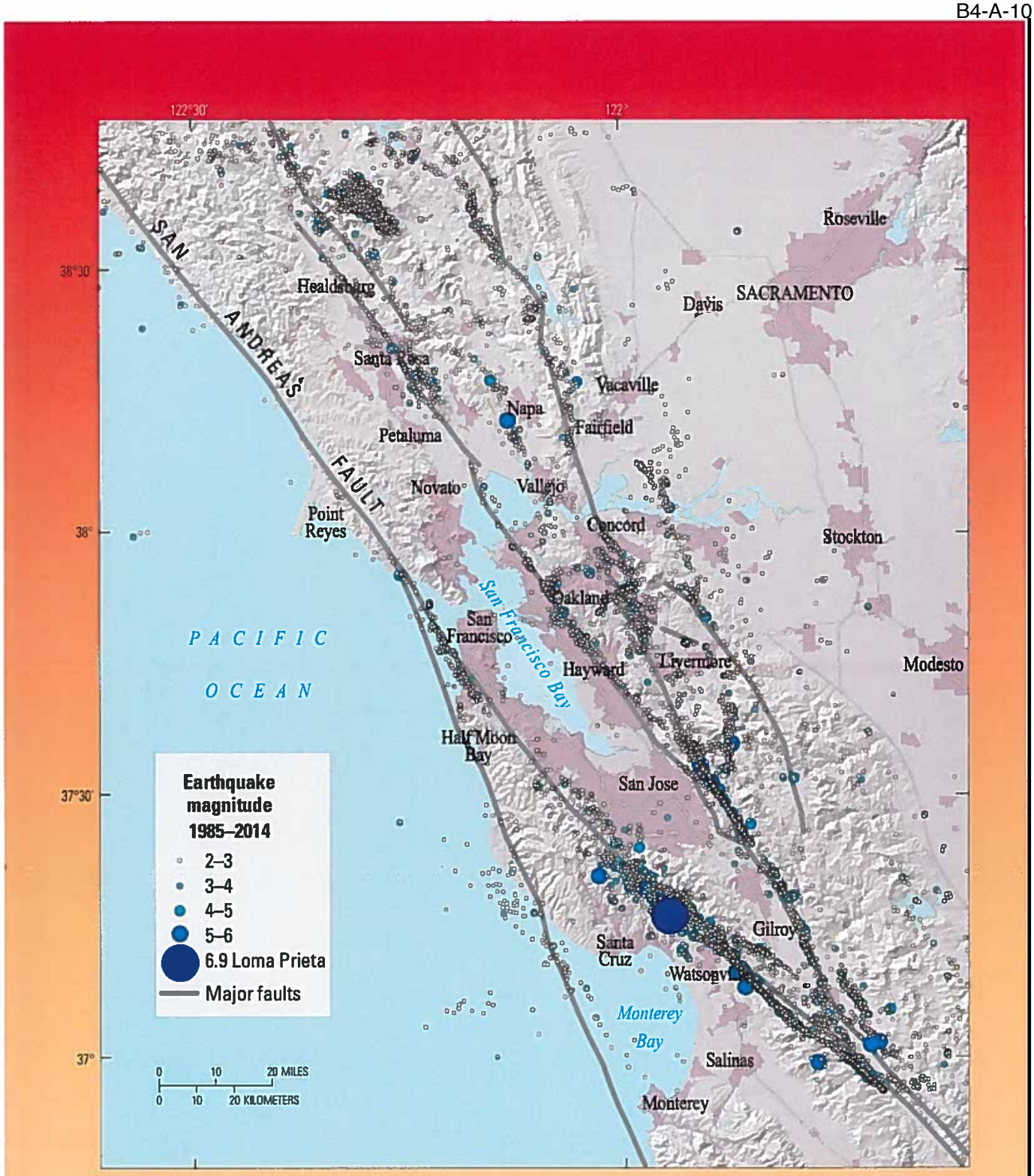
Early Sunday morning on August 24, 2014, the residents of Napa, California, were jolted awake by a strong, magnitude 6.0 earthquake. Within 30 minutes, the staff of Becoming Independent, a non-profit organization that helps adults with intellectual disabilities lead independent lives, called the people they serve in the affected area. The staff quickly visited all of the clients that needed help with cleanup and making their homes safe, a task made easier because both groups were trained in disaster preparedness and the clients had emergency kits with needed supplies on hand. The South Napa earthquake shifted houses off their foundations, damaged chimneys, started fires, and broke water mains throughout the city, causing hundreds of millions of dollars in economic losses. Many historic masonry buildings in downtown Napa were damaged. The earthquake was the largest in the San Francisco Bay region since the 1989 magnitude 6.9 Loma Prieta earthquake and a clear reminder of the seismic vulnerability of the region. The staff and clients of Becoming Independent showed that understanding and preparing for these events can improve how we live with future earthquakes.

Why Does the San Francisco Bay Region Have Earthquakes?

The same geologic process that is responsible for the San Francisco Bay region's beautiful coastlines, bays, hills, and valleys is also the primary driving force for earthquakes along faults in the region. The Bay region is located within the active boundary between the Pacific and the North American tectonic plates, where the Pacific plate slowly and continually slides northwest past the North American plate. The San Andreas Fault, on which two magnitude 7.8–7.9 earthquakes have occurred in historical time, including the 1906 San Francisco earthquake, is the fastest slipping fault along the plate boundary. Other major plate boundary faults in the San Francisco Bay region include the Hayward, Rodgers Creek, Calaveras, Maacama, San Gregorio, Concord, Green Valley, and Greenville Faults.

How Do Scientists Calculate Earthquake Probability?

Scientists rely upon a variety of techniques to help understand the rate and magnitude of past earthquakes in order to estimate the likelihood of future earthquakes. The Global Positioning System (GPS) and other land surveying and geologic techniques have allowed scientists to make more accurate measurements of how the current plate motions—totaling 1.6 inches per year across the San Francisco Bay region—distribute stress onto these individual faults. Balancing plate motions with the slip during large earthquakes and slow creep on faults allows scientists to calculate average rates of earthquake occurrence over periods of hundreds to thousands of years. (Continued on page 4)



Map of earthquakes greater than magnitude 2.0 in the San Francisco Bay region from 1985–2014. Small earthquakes occur on both major faults (shown by the gray lines) and minor faults (not shown). Because of the variability of fault geometry, earthquakes at depth do not always coincide with the mapped faults at the Earth's surface. There are sections of major faults, particularly the San Andreas Fault, with few or no small earthquakes but they will produce large earthquakes in the future. Compiled from the Northern California Seismic Network.

(Continued from page 2). A trench excavated across the Hayward Fault in Fremont revealed evidence of 12 large earthquakes over the past 1,900 years. The time interval between these earthquakes ranged from about 100 to 210 years. Historical records indicate that the most recent large earthquake on this fault occurred in 1868. However, detailed information about other past earthquakes in the San Francisco Bay region is difficult to obtain because seismograph records only go back to about 1900, historical accounts are sparse before 1850, and there are limited locations where faults can be trenched to identify and date prehistoric earthquakes.

Calculating accurate earthquake probabilities for short periods, such as 30 years, is also challenging. Although the 30-year time interval is convenient for humans, it is much less than the average time between large earthquakes on these faults, which can range from hundreds to thousands of years. The rate of large earthquakes in the San Francisco Bay region was high in the late 1800s but dropped abruptly after the 1906 San Francisco earthquake on the San Andreas Fault. Scientists believe that the post-1906 earthquake rate decreased because the large amount of slip along the San Andreas Fault in 1906 temporarily reduced the stress on many of the faults in the region. However, the ongoing motion of the tectonic plates began rebuilding stresses after the 1906 event, and earthquakes larger than magnitude 5.5 resumed during the second half of the 20th century. Future large, damaging earthquakes in the San Francisco Bay region, similar in size to the 1989 Loma Prieta and 1906 San Francisco earthquakes, may or may not be accompanied by the level of earthquake activity observed in the late 1800s.

The 2014 Uniform California Earthquake Rupture Forecast version 3 (http://pubs.usgs.gov/fs/2015/3009/) provides an updated estimate of the likelihood of large earthquakes in California over a 30-year time window from 2014 to 2043. The forecast accounts for how fast stress is accumulating on each fault due to plate motions and the time since its most recent large earthquake(s). In updating the probability calculations, scientists used a more complete set of faults for the San Francisco Bay region than those used in the previous (2008) calculations, adding 32 smaller faults to the 5 major fault systems. The new study has also incorporated more options for how multiple faults might rupture together in large earthquakes.

Probabilities of Earthquakes in the San Francisco Bay Region

Smaller earthquakes occur more frequently than larger earthquakes. The probability that an earthquake of magnitude 6.0 or larger will occur before 2043 is 98 percent. The probability of at least one earthquake of magnitude 6.7 or larger in the San Francisco Bay region is 72 percent, and for at least one earthquake of magnitude 7.0 or larger it is 51 percent. These probabilities include earthquakes on the major faults, lesser-known faults, and unknown faults.

The probability of a large earthquake occurring on an individual fault in the San Francisco region is lower than the probability of an earthquake occurring anywhere in the region. The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward, Rodgers Creek, Calaveras, and San Andreas Faults. In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward or Rodgers Creek Faults. Individual sections of these faults have lower probabilities for large earthquakes to occur (continued on page 6);

Seven Steps to Earthquake Safety

PREPARE

Before the next big earthquake we recommend these four steps that will make you, your family, or your workplace better prepared to survive and recover quickly:

Step 1: Secure your space by identifying hazards and securing moveable items.

Step 2: Plan to be safe by creating a disaster plan and deciding how you will communicate in an emergency.

Step 3: Organize disaster supplies in convenient locations.

Step 4: Minimize financial hardship by organizing important documents, strengthening your property, and considering insurance.

SURVIVE

During the next big earthquake, and immediately after, is when your level of preparedness will make a difference in how you and others survive and can respond to emergencies:

Step 5: Drop, Cover, and Hold On when the earth shakes.

Step 6: Improve safety after earthquakes by evacuating if necessary, helping the injured, and preventing further injuries or damage.

RECOVER

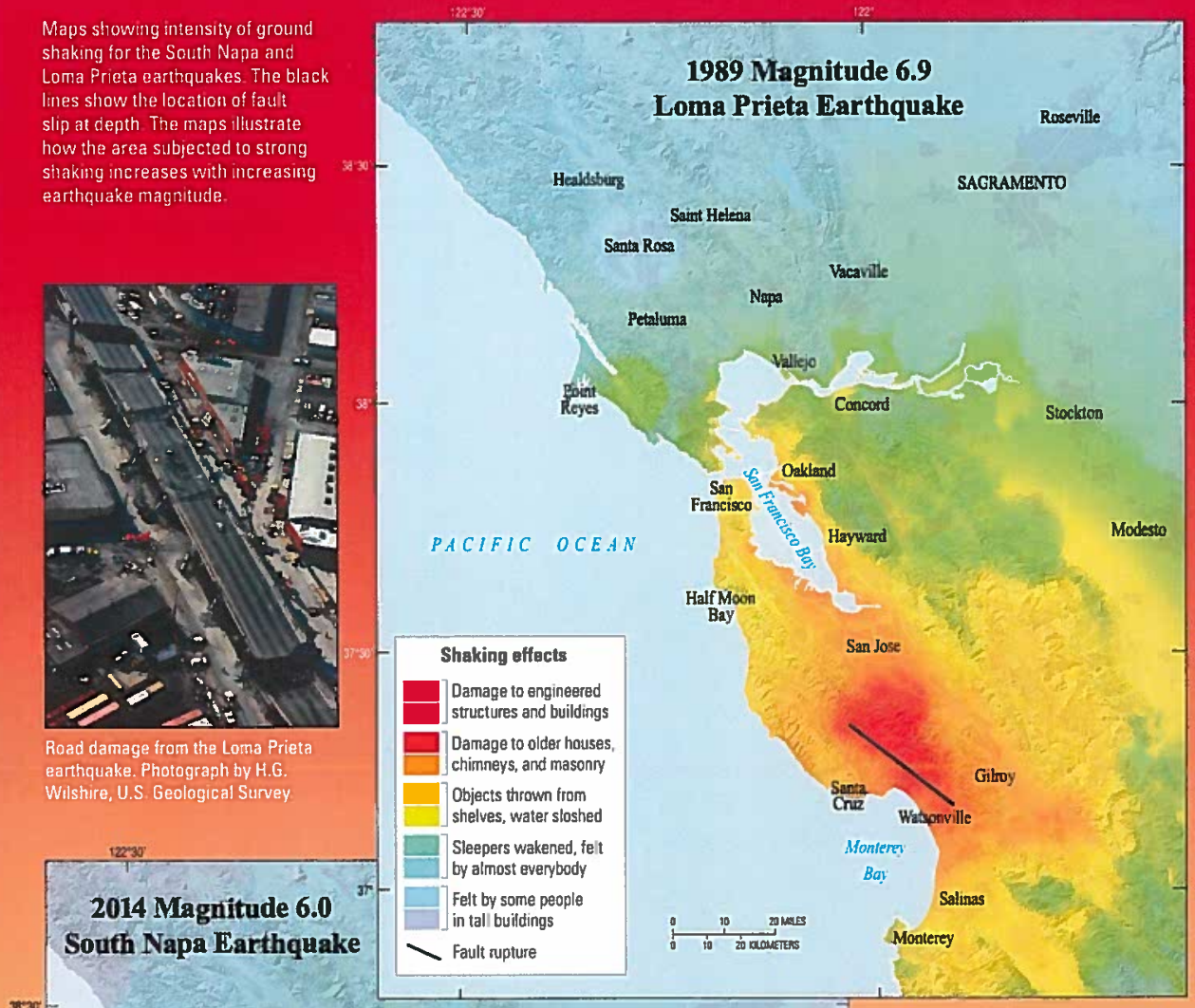
After the immediate threat of the earthquake has passed, your level of preparedness will determine your quality of life in the weeks and months that follow:

Step 7: Reconnect and Restore. Restore daily life by reconnecting with others, repairing damage, and rebuilding community.

Adapted from Seven Steps To Earthquake Safety
http://earthquakecountry.org/sevensteps/

Maps showing intensity of ground shaking for the South Napa and Loma Prieta earthquakes. The black lines show the location of fault slip at depth. The maps illustrate how the area subjected to strong shaking increases with increasing earthquake magnitude.

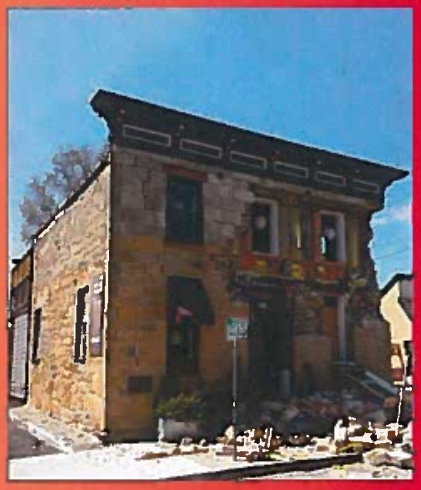
Road damage from the Loma Prieta earthquake. Photograph by H.G. Wilshire, U.S. Geological Survey.



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

Additional Earthquake Resources

American Red Cross – Bay Area (http://www.redcross.org/local/northern-california-coastal)
Association of Bay Area Governments (http://resilience.abag.ca.gov/earthquakes/)
Bay Area Earthquake Alliance (http://bayquakealliance.org/)
California Earthquake Authority (http://www.californiarocks.com/)
California Geological Survey
(http://www.consrv.ca.gov/cgs/geologic_hazards/earthquakes)
Did You Feel It? (http://earthquake.usgs.gov/earthquakes/dyfi/)
Earthquake Country Alliance (http://earthquakecountry.org/)
Putting Down Roots in Earthquake Country (http://pubs.usgs.gov/gip/2005/15/)
ShakeAlert – An Earthquake Early Warning System for the United States West Coast
(http://pubs.usgs.gov/fs/2014/3083/)
ShakeMap (http://www.cisn.org/shakemap/nc/shake/index.html)
ShakeOut.org (http://www.shakeout.org/california/bayarea/)
Uniform California Earthquake Rupture Fault version 3 Fact Sheet
(http://pubs.usgs.gov/fs/2015/3009/)
United Policyholders (http://www.uphelp.org/)
USGS Real-Time Earthquakes (http://earthquake.usgs.gov/earthquakes/map/)



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

(continued from page 5) however, an earthquake of magnitude 6.7 or larger will cause strong shaking over a broad area. Therefore, it is important to estimate the probability of a large earthquake occurring anywhere in the San Francisco Bay region.

What is the Likelihood That an Earthquake Will Affect You?

Earthquake probabilities are only one component in the evaluation of earthquake hazards. Higher magnitude earthquakes have broader areas of intense shaking and cause more damage than lower magnitude earthquakes. In a magnitude 6.0 earthquake, strong shaking and damage are confined to a localized area, as illustrated by the 2014 South Napa earthquake. In comparison, the 1989 magnitude 6.9 Loma Prieta earthquake caused damage over a region nearly 100 miles long. Local soil and geologic conditions, bedrock type, quality of building construction, and susceptibility to flooding (caused by dam or levee failure) can also affect the amount of damage at a particular site. This was dramatically demonstrated by the 1989 Loma Prieta earthquake, which devastated vulnerable parts of Oakland and San Francisco, more than 50 miles from the fault rupture.

How Can You Protect Yourself and Your Family?

Taking simple steps before and during earthquakes can help protect you and your family, as well as speed your recovery from an earthquake.

Before the next earthquake:

- Assess your home and work space, identify hazards, and secure moveable items.
- Create an emergency plan and organize disaster supplies to sustain you and your family for 72 hours or longer.
- Practice "Drop, Cover, and Hold On" to protect yourself when the ground begins to shake. Learn and practice what to do at home, work, or in school.
- Stay prepared by repeating these steps on a regular basis. For example, reassess your preparedness every year and participate in the annual Great California ShakeOut drill on the third Thursday in October.

Lack of adequate shear walls on the garage level exacerbated damage to this building at the corner of Beach and Divisadero in the Marina District, San Francisco, during the October 1989 Loma Prieta earthquake.

Brad T. Aagaard, James Luke Blair, John Boatwright, Susan H. Garcia Ruth A. Harris, Andrew J. Michael, David P. Schwartz, and Jeanne S. DiLeo

Edited by *Kate Jacques* and *Carolyn Donlin*

For more information contact:
1-888-ASK-USGS
(1-888-275-8747)

http://earthquake.usgs.gov/
http://ask.usgs.gov
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https://twitter.com/USGS

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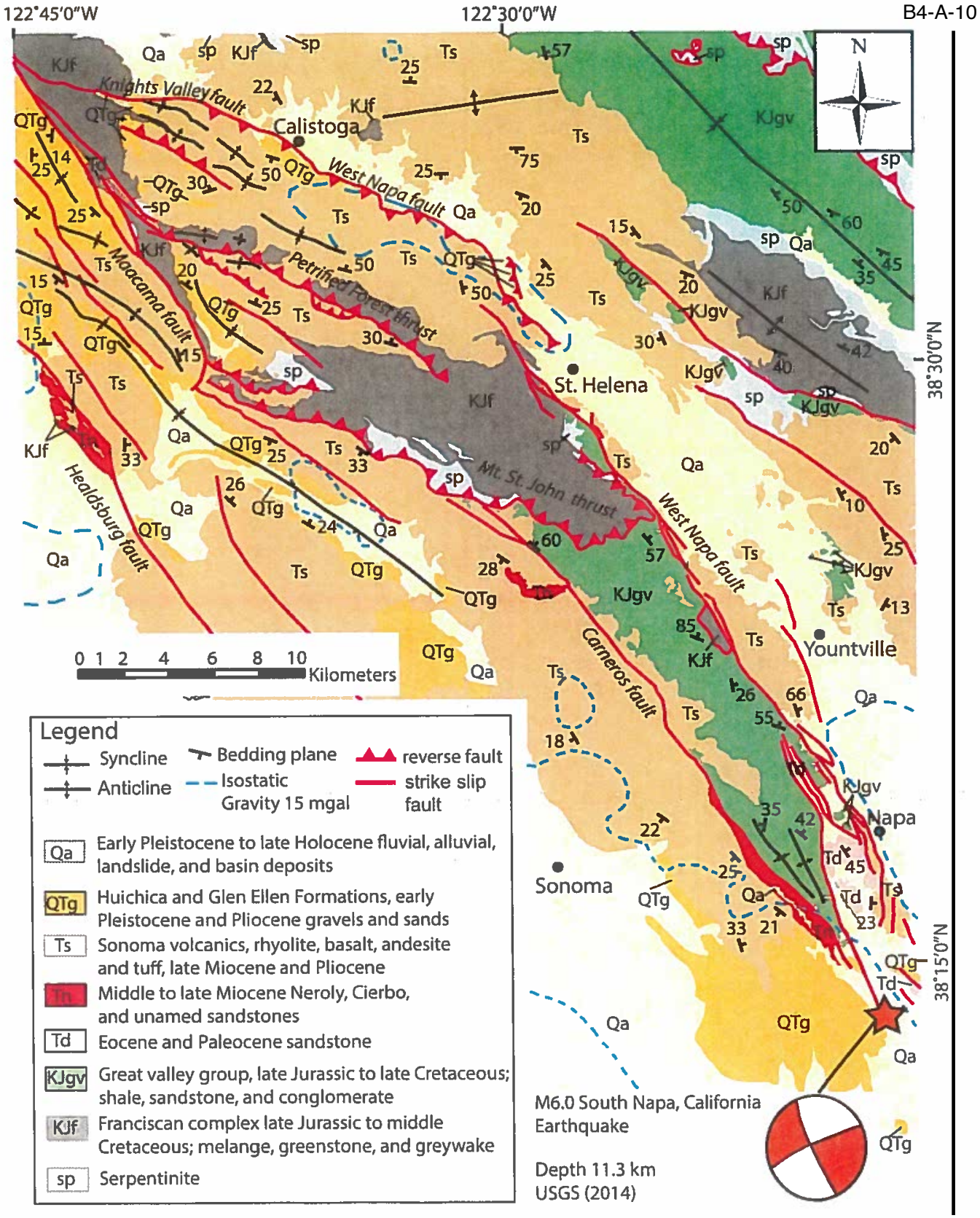
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122°30'0"W
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38°30'0"N
38°15'0"N
N
Knights Valley fault
West Napa fault
Petrified Forest thrust
Mayacama fault
Healdsburg fault
Mt. St. John thrust
Carneros fault
Calistoga
St. Helena
Yountville
Napa
Sonoma
0 1 2 4 6 8 10 Kilometers
Legend
Syncline
Anticline
Bedding plane
Isostatic Gravity 15 mgal
reverse fault
strike slip fault
Qa Early Pleistocene to late Holocene fluvial, alluvial, landslide, and basin deposits
QTg Huichica and Glen Ellen Formations, early Pleistocene and Pliocene gravels and sands
Ts Sonoma volcanics, rhyolite, basalt, andesite and tuff, late Miocene and Pliocene
Tn Middle to late Miocene Neroly, Cierbo, and unamed sandstones
Td Eocene and Paleocene sandstone
KJgv Great valley group, late Jurassic to late Cretaceous; shale, sandstone, and conglomerate
KJf Franciscan complex late Jurassic to middle Cretaceous; melange, greenstone, and greywake
sp Serpentinite
M6.0 South Napa, California Earthquake
Depth 11.3 km
USGS (2014)

Comment Letter B4-B

December 27, 2018

City of St Helena, City Hall
Received
DEC 28 2018
1480 Main St.
St Helena, CA 94574

Noah Housh, Planning Director
City of St. Helena
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B4-B-4

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I attach further information for your review once again. Please see that the preparers of the Draft EIR received all of the information provided with this letter. With the exception of the fault map, which isn't current, all other maps are an astounding improvement from those of years past, as are the descriptions of seismic hazards far superior. Since Napa County (not just the Bay Area) is described as Seismically Active, I believe a description should include this reality.

B4-B-7

Also of concern with respect to Hazards in Chapter 3.8 is a risk of CONFLAGRATION, which is a firestorm, or in the alternative, a seismic event that can trigger multiple fires and gas hazards. As a policy, the City should consider adding a section with some sound policies articulated, such as banning ornamental fire features within the City's Fire Emergency Response area. The 60 plus fire pits on balconies at Las Alcobas are under the control of guests, and it could take management some time to become aware of a problem in order to shut off a gas main. Other fire features of concern are ornamental fire walls like the one at Hall Winery on the second floor in their tasting room.

B4-B-8

B4-B-9

Thank you for this opportunity to comment.

Sincerely,

Lois Ann Battuello

Lois Ann Battuello

Enclosures - USGS updates and seismic facts from historic reports

CC: Paul Dohring, Council
Mary Koberstein, Council

B4-B-10

https://earthquake.usgs.gov/learn/topics/shakingsimulations/hayward/M7.0.php

Earthquake "Shake" Map for breaks on the Hayward Fault - 3 scenarios of shaking intensities for a 7.0 M quake - San Pablo Bay (almost no affect on Napa County), Oakland (serious affect on Napa County), and Fremont (extreme shaking and most serious affect on Napa County).

In the foregoing scenarios, note that the location furthest away, Fremont, would produce the most damage in Napa County. This is similar to the effect of the quake in 2017 in Mexico city, where the origin was 65 miles from Mexico City but the shaking and magnitude of the quake increased and was most severe in Mexico City.

Another way to get to Hayward Fault info: Use Google.com, type in Hayward Fault Shake Map and there's as USGS link on the index that is generated.

B4-B-10

AN ANALYSIS OF BAY AREA EARTHQUAKES AND USGS FORECASTS

The USGS has been accurate in its 30-year forecasts, as there has been at least one 6.0 M quake or greater within their set timeframe since 1959. Prior to that, there was only one quake just under 6.0 M from 1906 forward. This information is from the "List of Earthquakes in California" (Google the term and look for the Wiki link) and historic USGS forecasts (Google "Earthquake Outlook for San Francisco Bay Region 2014-2043).

Each time there is a 6.0 or greater quake, a new 30-year forecast has been made by USGS. Here are the differences since Napa's 8/24/14 earthquake:

(1) Probabilities have moved from 72% to 98% for a quake of 6.0 M or greater for the first time. Before: Probabilities were 72% or 70%

(2) USGS in 2014 increased the probabilities to include one "or more" events as shown in their Earthquake Outlook for the first time

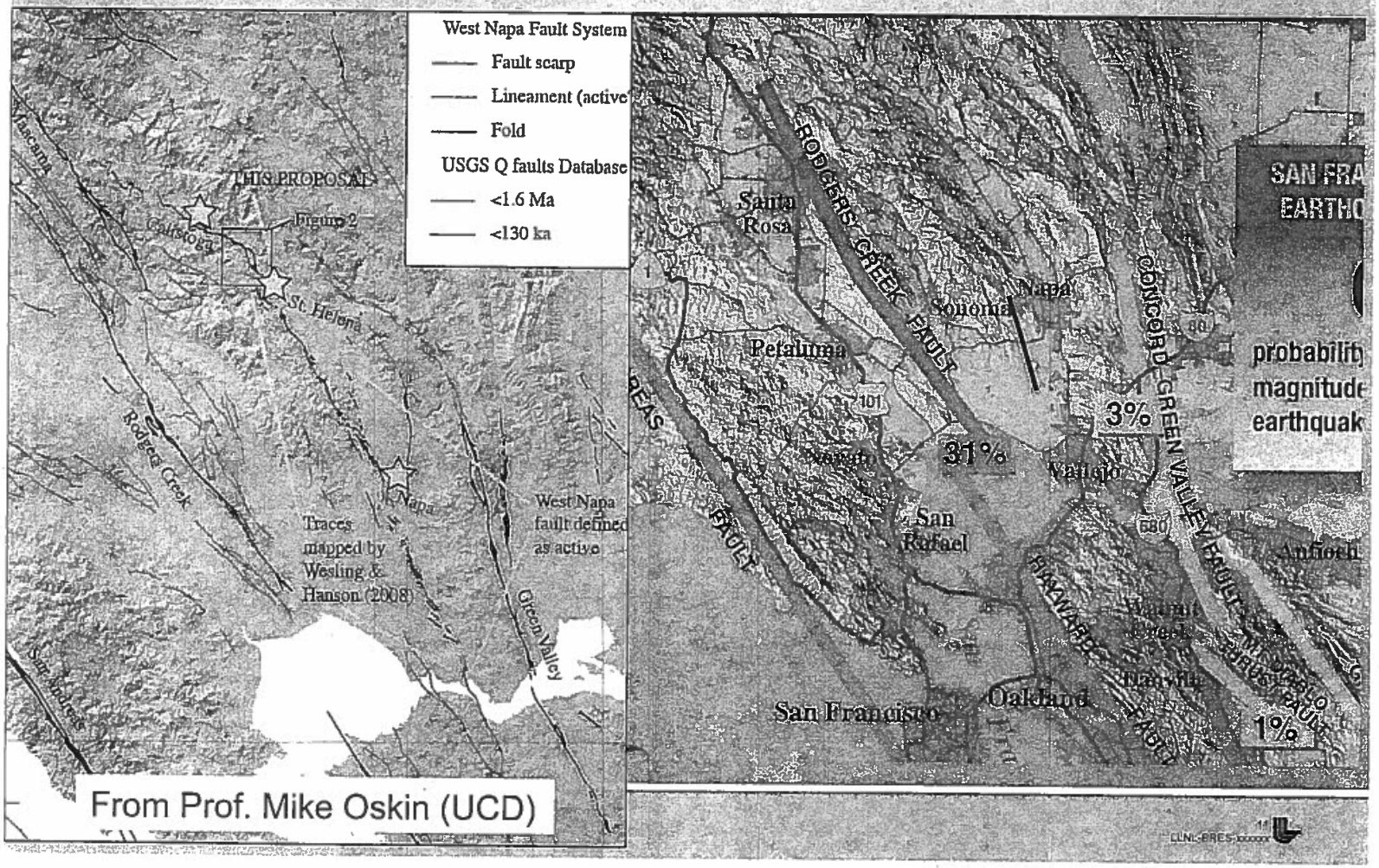
(3) USGS now adds the 72% probability of a 6.7 M or greater. This is the first time there has been a forecast probability for a 6.7 M or greater event.

All of this is new data since the Napa Earthquake of 8/24/14. The West Napa Fault erupted for the first time in 11,000 years to 45 miles in length.

We are more seismically active, as faults are building pressure, and are occurring within shorter time-frames. Hence the probability is 98%.

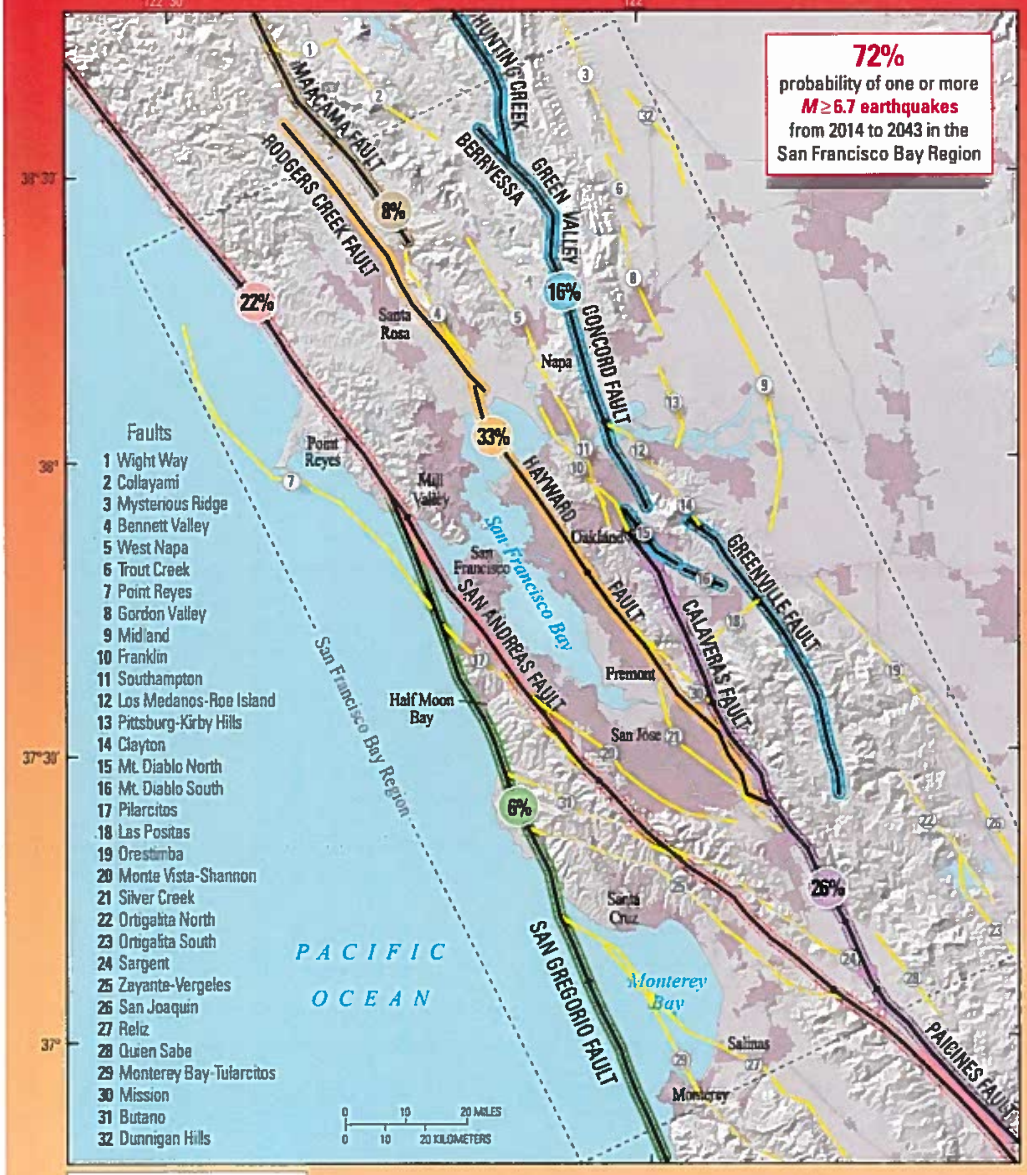
Since 1868, there have been four major earthquakes in San Francisco and the North/East Bay Area that have been felt in Napa: 1868 Hayward; 1906 San Francisco; 1989 Loma Prieta; 2014 West Napa. Three of the four occurred at night when people were in their beds between 1:20 a.m. and 5:19 a.m. Loma Prieta broke at approximately 5:00 p.m. Three of the four occurred just before or just after the Fall Equinox (Sept.). Only the San Francisco Earthquake of 1906 occurred just weeks after the Spring Equinox (Mar.) on April 18, 1906.

The West Napa Fault was identified as active, capable of M 6 event



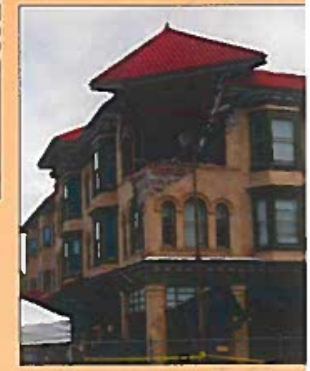
USGS
science for a changing world

Earthquake Outlook for the San Francisco Bay Region 2014–2043



Map of known active faults in the San Francisco Bay region. The 72 percent probability of a magnitude 6.7 or greater earthquake includes the well-known major plate-boundary faults, lesser-known faults, and unknown faults. The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043. The probability that a magnitude 6.7 or greater earthquake will involve one of the lesser-known faults is 13 percent.

Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California. They concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043. Earthquakes this large are capable of causing widespread damage; therefore, communities in the region should take simple steps to help reduce injuries, damage, and disruption, as well as accelerate recovery from these earthquakes.

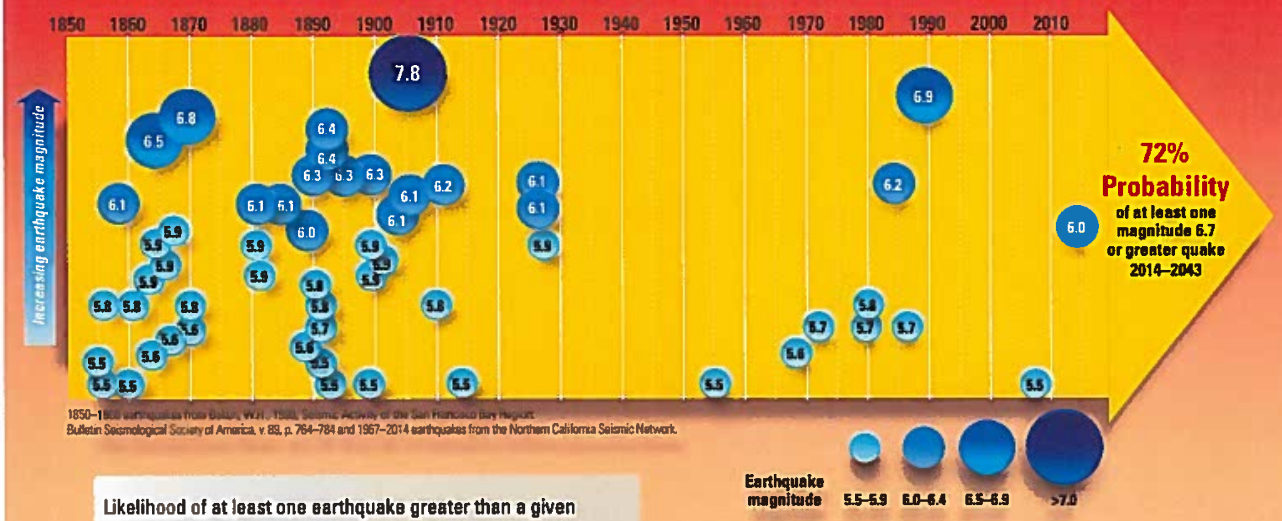


Building damaged in 2014 South Napa earthquake. Photograph by Erol Kalkan, U.S. Geological Survey.

U.S. Department of the Interior
U.S. Geological Survey

Fact Sheet 2015–3020
Revised August 2016 (ver. 1.1)

San Francisco Bay Region Earthquake Timeline



1850–1[illegible] earthquakes from Bolen, W.H., 1989, Seismic Activity of the San Francisco Bay Region: Bulletin Seismological Society of America, v. 89, p. 764–784 and 1967–2014 earthquakes from the Northern California Seismic Network.

Likelihood of at least one earthquake greater than a given magnitude in the San Francisco Bay region between 2014 and 2043.

Magnitude (*M*)	30-year likelihood of at least one earthquake in the San Francisco Bay region
$M \geq 6.0$	98 percent
$M \geq 6.7$	72 percent
$M \geq 7.0$	51 percent
$M \geq 7.5$	20 percent

Timeline of magnitude 5.5 and greater earthquakes in the San Francisco Bay region 1850–2014. In the 50 years prior to 1906, there were 13 earthquakes with a magnitude between 6 and 7, but only 6 earthquakes of similar magnitude in the 110 years since 1906. The rate of large earthquakes is expected to increase from this low level as tectonic plate movements continue to increase the stress on the faults in the region.

Earthquake Preparedness Helps

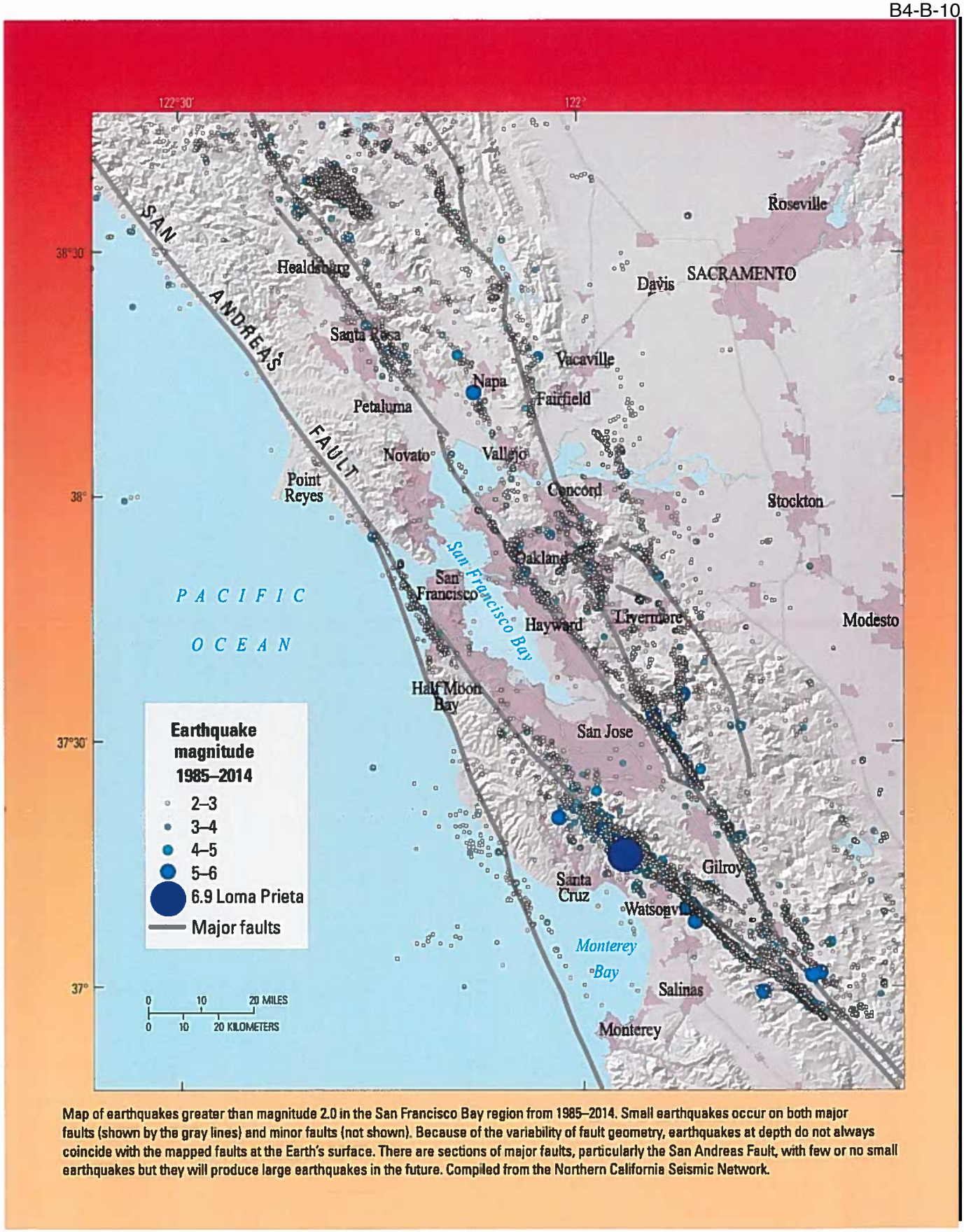
Early Sunday morning on August 24, 2014, the residents of Napa, California, were jolted awake by a strong, magnitude 6.0 earthquake. Within 30 minutes, the staff of Becoming Independent, a non-profit organization that helps adults with intellectual disabilities lead independent lives, called the people they serve in the affected area. The staff quickly visited all of the clients that needed help with cleanup and making their homes safe, a task made easier because both groups were trained in disaster preparedness and the clients had emergency kits with needed supplies on hand. The South Napa earthquake shifted houses off their foundations, damaged chimneys, started fires, and broke water mains throughout the city, causing hundreds of millions of dollars in economic losses. Many historic masonry buildings in downtown Napa were damaged. The earthquake was the largest in the San Francisco Bay region since the 1989 magnitude 6.9 Loma Prieta earthquake and a clear reminder of the seismic vulnerability of the region. The staff and clients of Becoming Independent showed that understanding and preparing for these events can improve how we live with future earthquakes.

Why Does the San Francisco Bay Region Have Earthquakes?

The same geologic process that is responsible for the San Francisco Bay region's beautiful coastlines, bays, hills, and valleys is also the primary driving force for earthquakes along faults in the region. The Bay region is located within the active boundary between the Pacific and the North American tectonic plates, where the Pacific plate slowly and continually slides northwest past the North American plate. The San Andreas Fault, on which two magnitude 7.8–7.9 earthquakes have occurred in historical time, including the 1906 San Francisco earthquake, is the fastest slipping fault along the plate boundary. Other major plate boundary faults in the San Francisco Bay region include the Hayward, Rodgers Creek, Calaveras, Maacama, San Gregorio, Concord, Green Valley, and Greenville Faults.

How Do Scientists Calculate Earthquake Probability?

Scientists rely upon a variety of techniques to help understand the rate and magnitude of past earthquakes in order to estimate the likelihood of future earthquakes. The Global Positioning System (GPS) and other land surveying and geologic techniques have allowed scientists to make more accurate measurements of how the current plate motions—totaling 1.6 inches per year across the San Francisco Bay region—distribute stress onto these individual faults. Balancing plate motions with the slip during large earthquakes and slow creep on faults allows scientists to calculate average rates of earthquake occurrence over periods of hundreds to thousands of years. (Continued on page 4)



Map of earthquakes greater than magnitude 2.0 in the San Francisco Bay region from 1985–2014. Small earthquakes occur on both major faults (shown by the gray lines) and minor faults (not shown). Because of the variability of fault geometry, earthquakes at depth do not always coincide with the mapped faults at the Earth's surface. There are sections of major faults, particularly the San Andreas Fault, with few or no small earthquakes but they will produce large earthquakes in the future. Compiled from the Northern California Seismic Network.

(Continued from page 2). A trench excavated across the Hayward Fault in Fremont revealed evidence of 12 large earthquakes over the past 1,900 years. The time interval between these earthquakes ranged from about 100 to 210 years. Historical records indicate that the most recent large earthquake on this fault occurred in 1868. However, detailed information about other past earthquakes in the San Francisco Bay region is difficult to obtain because seismograph records only go back to about 1900, historical accounts are sparse before 1850, and there are limited locations where faults can be trenched to identify and date prehistoric earthquakes.

Calculating accurate earthquake probabilities for short periods, such as 30 years, is also challenging. Although the 30-year time interval is convenient for humans, it is much less than the average time between large earthquakes on these faults, which can range from hundreds to thousands of years. The rate of large earthquakes in the San Francisco Bay region was high in the late 1800s but dropped abruptly after the 1906 San Francisco earthquake on the San Andreas Fault. Scientists believe that the post-1906 earthquake rate decreased because the large amount of slip along the San Andreas Fault in 1906 temporarily reduced the stress on many of the faults in the region. However, the ongoing motion of the tectonic plates began rebuilding stresses after the 1906 event, and earthquakes larger than magnitude 5.5 resumed during the second half of the 20th century. Future large, damaging earthquakes in the San Francisco Bay region, similar in size to the 1989 Loma Prieta and 1906 San Francisco earthquakes, may or may not be accompanied by the level of earthquake activity observed in the late 1800s.

The 2014 Uniform California Earthquake Rupture Forecast version 3 (http://pubs.usgs.gov/fs/2015/3009/) provides an updated estimate of the likelihood of large earthquakes in California over a 30-year time window from 2014 to 2043. The forecast accounts for how fast stress is accumulating on each fault due to plate motions and the time since its most recent large earthquake(s). In updating the probability calculations, scientists used a more complete set of faults for the San Francisco Bay region than those used in the previous (2008) calculations, adding 32 smaller faults to the 5 major fault systems. The new study has also incorporated more options for how multiple faults might rupture together in large earthquakes.

Probabilities of Earthquakes in the San Francisco Bay Region

Smaller earthquakes occur more frequently than larger earthquakes. The probability that an earthquake of magnitude 6.0 or larger will occur before 2043 is 98 percent. The probability of at least one earthquake of magnitude 6.7 or larger in the San Francisco Bay region is 72 percent, and for at least one earthquake of magnitude 7.0 or larger it is 51 percent. These probabilities include earthquakes on the major faults, lesser-known faults, and unknown faults.

The probability of a large earthquake occurring on an individual fault in the San Francisco region is lower than the probability of an earthquake occurring anywhere in the region. The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward, Rodgers Creek, Calaveras, and San Andreas Faults. In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward or Rodgers Creek Faults. Individual sections of these faults have lower probabilities for large earthquakes to occur (continued on page 6);

Seven Steps to Earthquake Safety

PREPARE

Before the next big earthquake we recommend these four steps that will make you, your family, or your workplace better prepared to survive and recover quickly:

Step 1: Secure your space by identifying hazards and securing moveable items.

Step 2: Plan to be safe by creating a disaster plan and deciding how you will communicate in an emergency.

Step 3: Organize disaster supplies in convenient locations.

Step 4: Minimize financial hardship by organizing important documents, strengthening your property, and considering insurance.

SURVIVE

During the next big earthquake, and immediately after, is when your level of preparedness will make a difference in how you and others survive and can respond to emergencies:

Step 5: Drop, Cover, and Hold On when the earth shakes.

Step 6: Improve safety after earthquakes by evacuating if necessary, helping the injured, and preventing further injuries or damage.

RECOVER

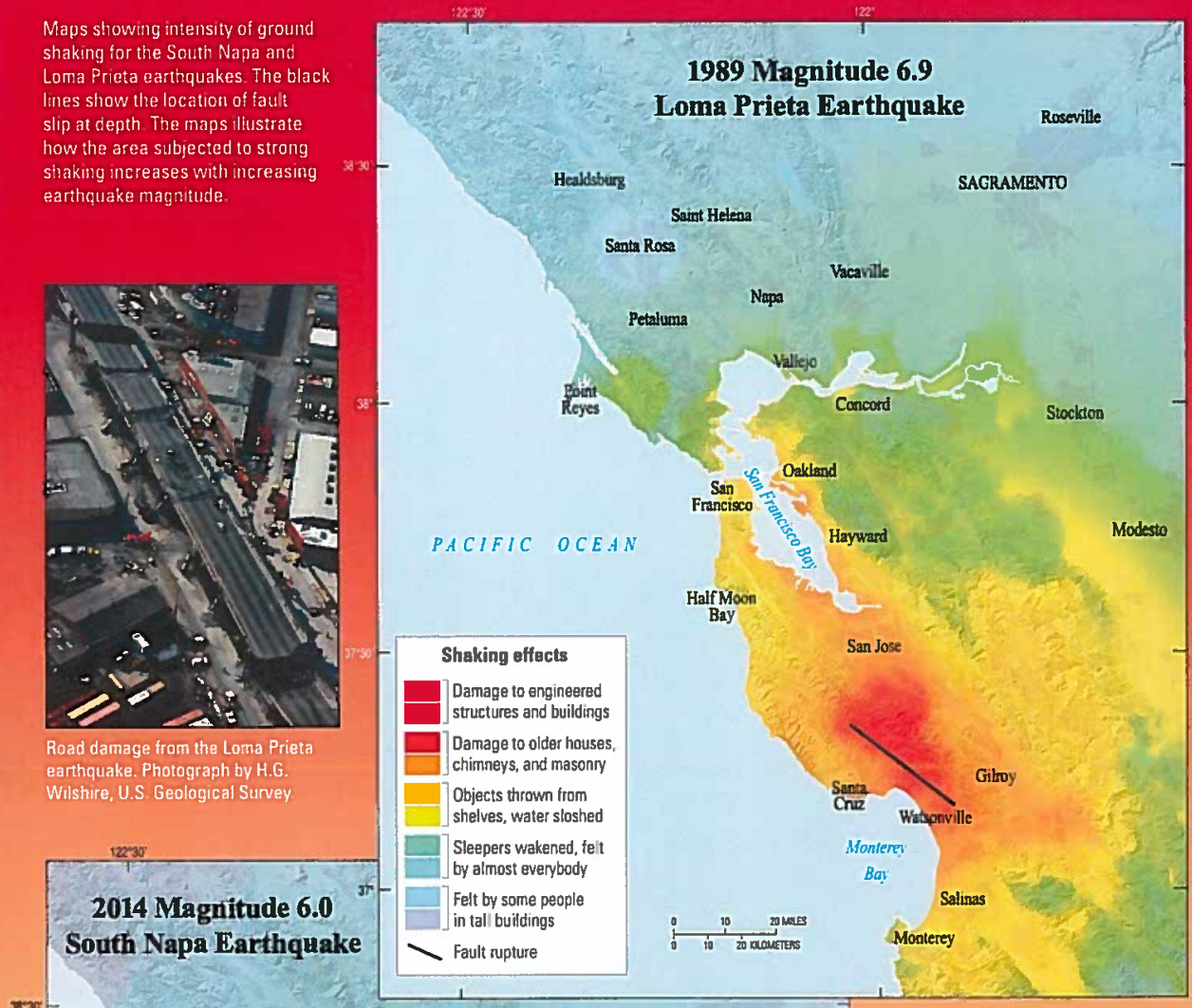
After the immediate threat of the earthquake has passed, your level of preparedness will determine your quality of life in the weeks and months that follow:

Step 7: Reconnect and Restore. Restore daily life by reconnecting with others, repairing damage, and rebuilding community.

Adapted from Seven Steps To Earthquake Safety
http://earthquakecountry.org/sevensteps/

Maps showing intensity of ground shaking for the South Napa and Loma Prieta earthquakes. The black lines show the location of fault slip at depth. The maps illustrate how the area subjected to strong shaking increases with increasing earthquake magnitude.

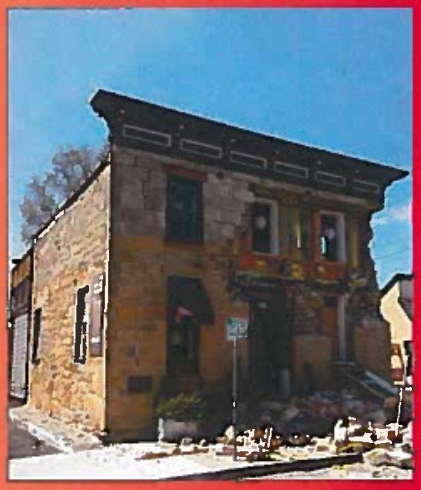
Road damage from the Loma Prieta earthquake. Photograph by H.G. Wilshire, U.S. Geological Survey.



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

Additional Earthquake Resources

American Red Cross – Bay Area (http://www.redcross.org/local/northern-california-coastal)
Association of Bay Area Governments (http://resilience.abag.ca.gov/earthquakes/)
Bay Area Earthquake Alliance (http://bayquakealliance.org/)
California Earthquake Authority (http://www.californiarocks.com/)
California Geological Survey
(http://www.consrv.ca.gov/cgs/geologic_hazards/earthquakes)
Did You Feel It? (http://earthquake.usgs.gov/earthquakes/dyfi/)
Earthquake Country Alliance (http://earthquakecountry.org/)
Putting Down Roots in Earthquake Country (http://pubs.usgs.gov/gip/2005/15/)
ShakeAlert – An Earthquake Early Warning System for the United States West Coast
(http://pubs.usgs.gov/fs/2014/3083/)
ShakeMap (http://www.cisn.org/shakemap/nc/shake/index.html)
ShakeOut.org (http://www.shakeout.org/california/bayarea/)
Uniform California Earthquake Rupture Fault version 3 Fact Sheet
(http://pubs.usgs.gov/fs/2015/3009/)
United Policyholders (http://www.uphelp.org/)
USGS Real-Time Earthquakes (http://earthquake.usgs.gov/earthquakes/map/)



Damaged building in downtown Napa. Photograph by Erol Kalkan, U.S. Geological Survey.

(continued from page 5) however, an earthquake of magnitude 6.7 or larger will cause strong shaking over a broad area. Therefore, it is important to estimate the probability of a large earthquake occurring anywhere in the San Francisco Bay region.

What is the Likelihood That an Earthquake Will Affect You?

Earthquake probabilities are only one component in the evaluation of earthquake hazards. Higher magnitude earthquakes have broader areas of intense shaking and cause more damage than lower magnitude earthquakes. In a magnitude 6.0 earthquake, strong shaking and damage are confined to a localized area, as illustrated by the 2014 South Napa earthquake. In comparison, the 1989 magnitude 6.9 Loma Prieta earthquake caused damage over a region nearly 100 miles long. Local soil and geologic conditions, bedrock type, quality of building construction, and susceptibility to flooding (caused by dam or levee failure) can also affect the amount of damage at a particular site. This was dramatically demonstrated by the 1989 Loma Prieta earthquake, which devastated vulnerable parts of Oakland and San Francisco, more than 50 miles from the fault rupture.

How Can You Protect Yourself and Your Family?

Taking simple steps before and during earthquakes can help protect you and your family, as well as speed your recovery from an earthquake.

Before the next earthquake:

- Assess your home and work space, identify hazards, and secure moveable items.
- Create an emergency plan and organize disaster supplies to sustain you and your family for 72 hours or longer.
- Practice "Drop, Cover, and Hold On" to protect yourself when the ground begins to shake. Learn and practice what to do at home, work, or in school.
- Stay prepared by repeating these steps on a regular basis. For example, reassess your preparedness every year and participate in the annual Great California ShakeOut drill on the third Thursday in October.

Lack of adequate shear walls on the garage level exacerbated damage to this building at the corner of Beach and Divisadero in the Marina District, San Francisco, during the October 1989 Loma Prieta earthquake.

Brad T. Aagaard, James Luke Blair, John Boatwright, Susan H. Garcia Ruth A. Harris, Andrew J. Michael, David P. Schwartz, and Jeanne S. DiLeo

Edited by *Kate Jacques* and *Carolyn Donlin*

For more information contact:
1-888-ASK-USGS
(1-888-275-8747)

http://earthquake.usgs.gov/
http://ask.usgs.gov
https://www.facebook.com/USGeologicalSurvey
https://twitter.com/USGS

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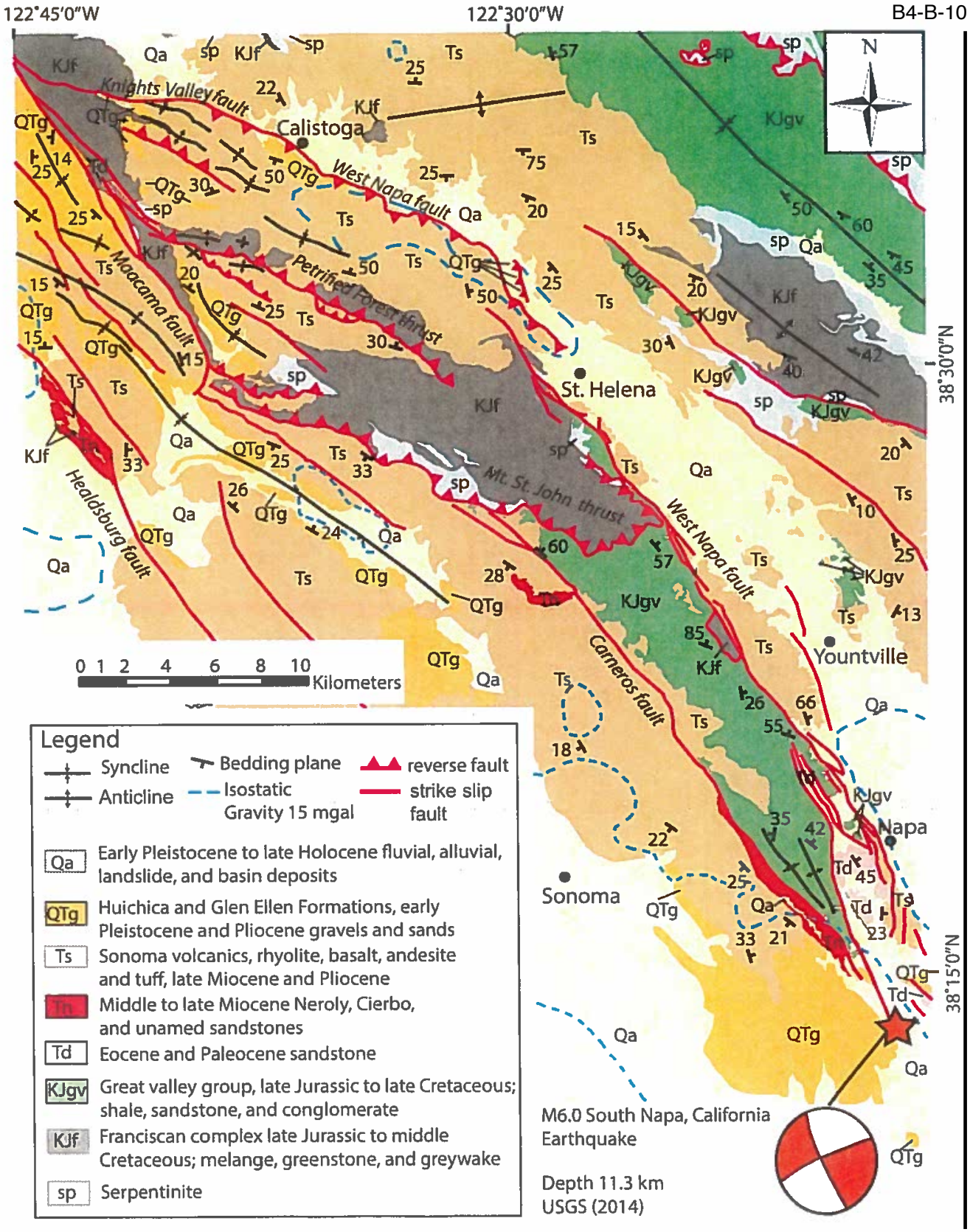

122°45'0"W
122°30'0"W
B4-B-10
38°30'0"N
38°15'0"N
N
Knights Valley fault
West Napa fault
Petrified Forest thrust
Mayacama fault
Healdsburg fault
Mt. St. John thrust
Carneros fault
Calistoga
St. Helena
Yountville
Napa
Sonoma
0 1 2 4 6 8 10 Kilometers
Legend
Syncline
Anticline
Bedding plane
Isostatic Gravity 15 mgal
reverse fault
strike slip fault
Qa Early Pleistocene to late Holocene fluvial, alluvial, landslide, and basin deposits
QTg Huichica and Glen Ellen Formations, early Pleistocene and Pliocene gravels and sands
Ts Sonoma volcanics, rhyolite, basalt, andesite and tuff, late Miocene and Pliocene
Tn Middle to late Miocene Neroly, Cierbo, and unamed sandstones
Td Eocene and Paleocene sandstone
KJgv Great valley group, late Jurassic to late Cretaceous; shale, sandstone, and conglomerate
KJf Franciscan complex late Jurassic to middle Cretaceous; melange, greenstone, and greywake
sp Serpentinite
M6.0 South Napa, California Earthquake
Depth 11.3 km
USGS (2014)

Comment Letter B5

DEC. 29, 2018

RECEIVED
PLANNING DEPARTMENT
DEC 31 2018
CITY OF ST HELENA

TIM KLEIN
1110 PEPPERTREE CIRCLE
ST. HELENA, CA. 94574
(707) 963-8100

TO WHOM IT MAY CONCERN:

AS A LONG TIME RESIDENT OF ST. HELENA, I AM VERY CONCERNED ABOUT THE QUALITY OF LIFE HERE. IN THIS LETTER I WILL ONLY DISCUSS THE CURRENT NEED FOR THE CONTROL OF TRAFFIC FLOW, ESPECIALLY DURING RUSH HOURS, WEEKENDS, AND HOLIDAYS. IN THE LONG TERM THERE WILL BE A NEED FOR ADDITIONAL CONNECTOR STREETS TO MITIGATE "IN-TOWN" TRAFFIC CONGESTION. B5-1

FOR NOW, I FEEL THAT A "HIGH AND WIDE" ADAMS STREET BRIDGE, CROSSING THE NAPA RIVER AND ALIGNING WITH THE CURRENT MEADOWOOD ACCESS STREET ON THE EAST SIDE OF THE SILVERADO TRAIL, COULD BE THE CORE OF THE UPDATED SYSTEM. B5-2

THIS BRIDGE SHOULD BE A "500 YEAR" FLOOD LEVEL HEIGHT SINCE THE LONG TERM CLIMATE CAN BE UNPREDICTABLE, AND I REMEMBER HOW ISOLATED PEOPLE WERE DURING PAST FLOODING PERIODS.

ADDITIONALLY, THE NEW BRIDGE SHOULD BE AT

B5-2

LEAST THREE "WIDE" LANES WITH A PROTECTED BIKE AND PEDESTRIAN PATHWAY. THE TRAFFIC LANES SHOULD BE WIDE ENOUGH TO COMFORTABLY ACCOMODATE TRACTOR-TRAILER RIGS (18 WHEELER), LARGE BOX TRUCKS, LONG MOTOR HOMES, AND STRETCH "LIMOS" WITHOUT THE NEED TO CROSS INTO ADJOINING LANES WHILE MANEUVERING ONTO THE BRIDGE, OR ENTERING THE HIGHWAY FROM THE BRIDGE.

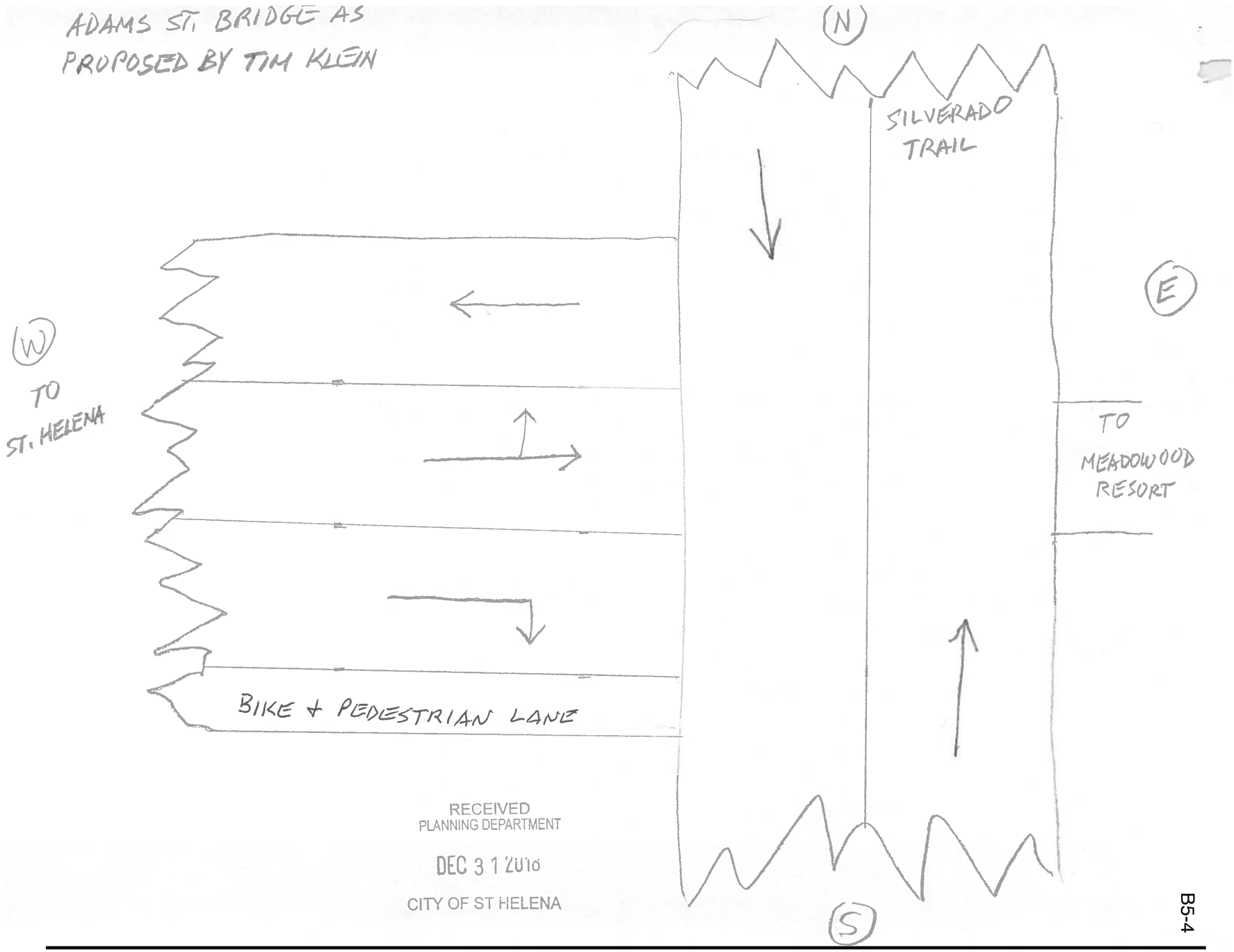
AFTER THE ADAMS STREET BRIDGE IS COMPLETED, I THINK THE EAST POPE STREET BRIDGE SHOULD BE CHANGED TO ONE WAY ONLY, EASTBOUND, WITH A PROTECTED BIKE AND PEDESTRIAN PATHWAY. TRACTOR-TRAILER RIGS AND BUSSES SHOULD BE DIRECTED TO THE ADAMS ST. BRIDGE. ENFORCEMENT COULD INCLUDE CAMERAS, ETC., ESPECIALLY DURING PEAK TRAFFIC PERIODS, WITH FOLLOW-UP BY POLICE.

LATER, STARR STREET SHOULD CONNECT NOT ONLY ADAMS AND POPE STREETS, BUT IT SHOULD CONTINUE NORTH TO DEER PARK AND SOUTH TO DOWDELL LANE

B5-3

SINCERELY—

Tim Klein



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DEC 3 1 2016
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CORRECTED MAP

B5-4

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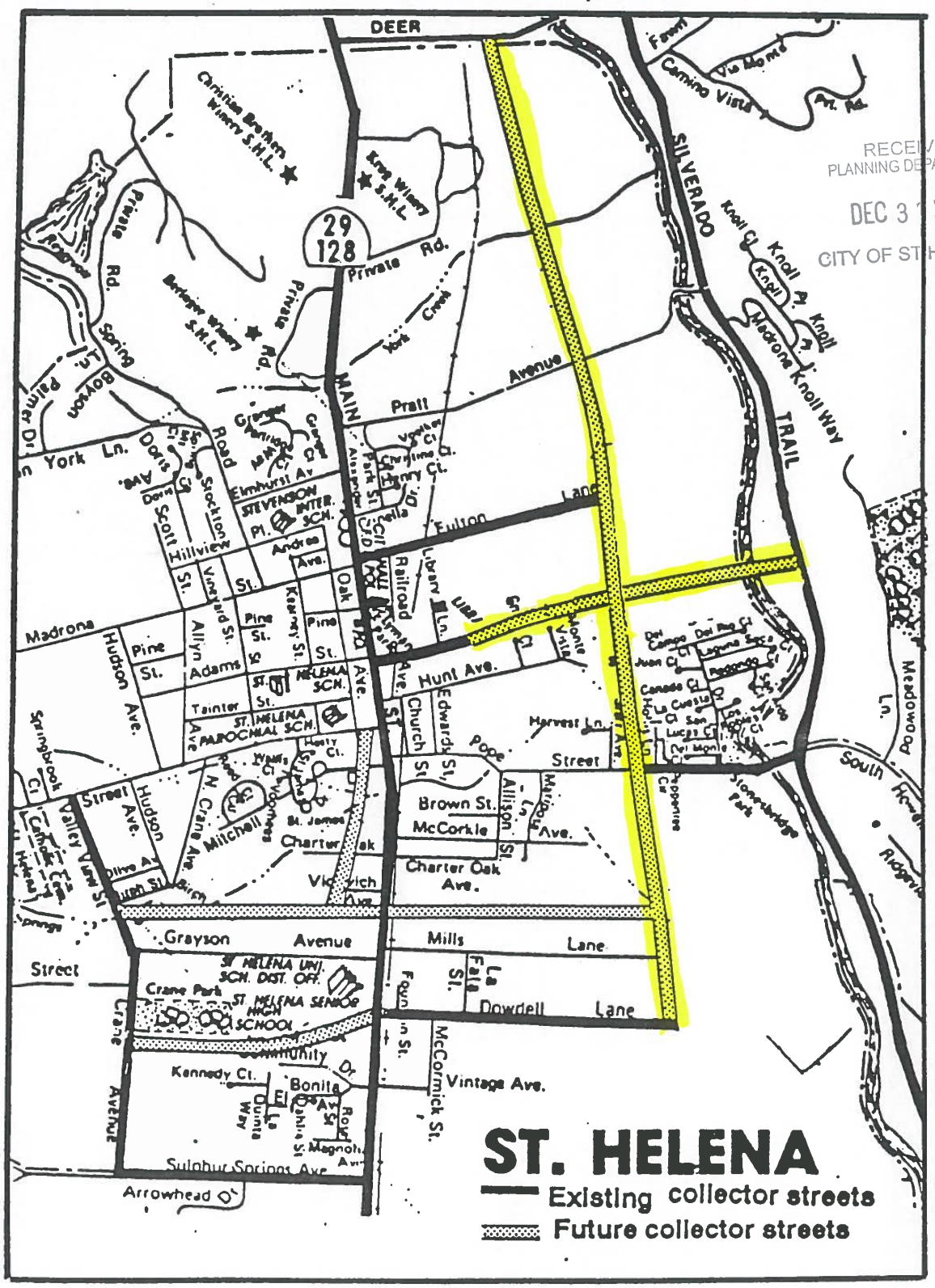
CITY OF ST. HELENA



Proposed circulation element amendment to the general plan 10/26/83

Comment Letter B6

From: John Ponte
Sent: Sunday, December 30, 2018 3:54 PM
To: Noah Housh <NHoush@cityofsthelena.org>
Cc: Aaron Hecock <ahecock@cityofsthelena.org>
Subject: Comments GP EIR

B6-1

Good Afternoon, Noah.

I am writing to you from this address with comments on the GP EIR that are more editorial in nature than those that I expressed at the PC meeting. Most of these herein are more of a 'fix it' nature - wrong word, wrong name (in one case, wrong city), wrong place or poorly worded. A few are a bit larger than that but the most important ones were made from the dais in the hearing and with the endorsement (apparently) of my colleagues.

B6-2

These are lesser comments that I would have made if droning on for a couple of hours was either possible or desirable. However, in my opinion, such errors contribute to lowering the perceived veracity of any document and the GP EIR is a document one wishes to have very high perceived veracity. My colleagues have not seen or discussed these, they are my own.

The document needs a good editor. This is only a weak contribution to a start as I am not trained or talented in that area.

The comments were written in .odt but a .doc file - which may have made some automatic formatting changes - is also attached.

As always, questions or comments are invited -

John

B6-3

ES-1, third paragraph,third sentence. Consider adding federal environmental review as a possibility (albeit rare). Also consider not capitalizing “State” throughout the document, especially since federal is not capitalized anywhere in the document.

B6-4

B6-5

ES-1, Proposed Plan, first paragraph,last sentence. Consider changing “fully replace” since, as correctly noted further along in the document, the housing element will not be replaced.

B6-6

ES-4, Tables ES-1 and 2. Consider eliminating rounding to the nearest 100. Not only does this result in some intuitively confusing totals, but rounding to the nearest 100 with such small numbers leads to very large uncertainties on a percentage basis. In addition, in other locations in the document, exact

numbers are depicted. Even the State Department of Finance now uses exact numbers in their E-1 population estimates. B6-6

ES-5, Transportation Network Enhancement Alternative, second paragraph, third sentence. Please do not capitalize “downtown” as it is not a proper noun. Excess capitalization seemingly appears often in the document; please consider removing all such cases (“CALTRANS”, “Planning Area” or “Tribal Cultural” for examples). B6-7

ES-9, Transportation and Traffic, second paragraph. Please write out “Twenty-seven” (or any number if it begins a sentence). B6-8

ES-10, Identification of Environmentally Superior Alternative, first paragraph. Consider writing numbers consistently in the text. In this paragraph, some numbers are written (“six” and “seven”) while another one word number (“11”) is not. Generally either all numbers are written with numerals (except when beginning a sentence), no numbers are written with numerals or only numbers that can not be written with one or two words are shown as numerals. B6-9

1-2, Intended Uses of the EIR, last sentence. Please consider changing the name “Napa Valley Transit Authority” to the correct name. B6-10

2-14, Urban Limit Line,third sentence. Please consider changing the end of the sentence to read, for the sake of clarity, “as described in Table 2.3-2.” B6-11

2-21, Tables. Please see comment ES-4. B6-12

2-22, Table 2.3-5. Consider correcting the Study Areas column. B6-13

3.1-3, Open Space and Agriculture, second sentence. Is it 65 percent, 75 percent or 65 to 75 percent? Please clarify. B6-14

3.1-4, Light and Glare, last sentence. This reads as a flat conclusion but does not appear to be buttressed by data. Please consider either adding information or softening the sentence (for example, “...appear to be typical for an urbanized setting”). B6-15

3.1-10, CD5.E and 3.1-11, Impact 3.1-2 last sentence. It looks a bit odd calling for the city to consider having SR 29 designated a scenic highway (CD5.E) and at the same time writing that the new GP will not impact any scenic highway as the city has none. Consider deleting, “...lack of any designated state scenic highways with in the City and...”, or making it clear that even if SR 29 is designated as a scenic highway, the polices in the plan will ensure that there are no impacts to scenic resources. B6-16

3.1-12, second paragraph, second line from the end. Please consider replacing “main” with “all” as CD1.8 does not appear to limit itself to any particular roadway type. B6-17

3.2-2, Agricultural Context, second sentence. Consider replacing the value given for agricultural production in Napa county with a figure considerably larger than the $737,298 shown. B6-18

3.2-2, Farmland Characteristics. Consider rewording the second sentence, Agricultural uses as shown on Figure 3.2-1 are spread throughout the city, not simply adjacent to the ULL. B6-19

3.2-8, Napa County Measures J and P, second sentence. Consider replacing “Ma”with “Map”. B6-20

3.2-12, Methodology and Assumptions, second paragraph. Please consider replacing, “The Planning B6-21

Area for the Proposed Plan...” with the simpler, just as accurate and easier to read, “The planning area ...”. Consider a universal search and replace, as the wordy phrase is used multiple times. B6-21

3.3-3, Carbon Monoxide, fourth sentence. Please consider rewording – perhaps “not photochemically reactive” or “not an ozone precursor”. It is a reactive compound, burning easily and binding to hemoglobin much more readily than oxygen. B6-22

3.3-5, Table 3.3-1, Notes 4 and 5. For Note 4, please consider updating the expected designation date. For Note 5, please consider removing it from the Federal Standards Classification column for lead and adding it to the State Standards Classification column for both lead and vinyl chloride. B6-23

3.3-6, second paragraph, second sentence. Please consider rewording. The sentence appears to read that the air basin exceeded the state one-hour standard five times and the federal one-hour standard two times when Table 3.3-1 shows no federal one-hour standard. If the sentence is attempting to read that the the state one-hour standard was exceeded five times and the federal eight-hour standard was exceeded two times, please write that. B6-24

3.3-8, Federal Clean Air Act, first paragraph,second sentence. Consider changing “CAA” reference to the California Clean Air Act to CCAA. Further, consider moving the entire sentence on the CCAA to the following section covering that law. B6-25

3.3-14, Bay Area Air Quality Management District, second paragraph, first sentence. What is, “The air quality study area..”? If it is the planning area, please so state; if it is some other area, please describe how it is related to the planning area. B6-26

3.3-24, CR1.7. Consider altering the sentence to read “...with the owners ...” or perhaps “... with the new owners ...” - although not so new anymore. B6-27

3.3-30, Applicable Control Measures, first paragraph. Please capitalize “Buildings”(#4). B6-28

3.3-31, Table 3.3-6, TR8. Please consider rewording as St. Helena is not the only rural community in the Bay Area and opportunities for ridesharing services and incentives are well more than “somewhat” limited. Would suggest the deletion of “relatively” and “somewhat” and the addition of “most” between “to other”. B6-29

3.3-37, Table 3.3-7, Note 2. Please consider deleting “...such as the Proposed Plan,” as unnecessarily repetitive. B6-30
3.3-38, Table 3.3-8, Note 2. Please see above. Also consider “general plan” rather than”specific plan”.

3.3-42,AQ-1, fifth bullet. “Laying building pads ...”- is this intended to read “Pour”? In addition many structures in St. Helena have live, not poured floors. Is there a suggestion for those structures as well? B6-31

3.3-42,AQ-1, seventh bullet. Is the check by the certified mechanic (and certified by who for what?) supposed to take place each day, month, project? B6-32

3.3-42,AQ-1, eighth bullet. Consider adding “for example” just after the parenthetical statement begins.

3.3-42,AQ-1, what should be the tenth bullet. Consider placing a bullet before “Where warranted” and removing the underline. Also consider tabing in the next two paragraphs and beginning them with “Power” and “Ensure”, respectively.

3.3-47, second paragraph, first sentence. Consider “21-year”. B6-33

3.3-48, second paragraph, second sentence. Please consider ending the sentence with “approval” or perhaps “action by the city”. B6-34

3.3-48, Gasoline Stations. Wasn't Flyers near the corner of 29 and Inglewood in area 3? It is now an open and operating Mobil station. B6-35

3.3-50 Table 3.3-9. Consider including the address of Nella Oil and capitalizing “Main” in the address for St. Helena Petroleum. B6-36

3.4-1, Habitat Types, first sentence. Consider the wooded hillside and the interspersed housing on and near Howell Mountain Road on the east side of the city and alter the sentence accordingly. B6-37

3.4-4, Orchard-Vineyard, fifth sentence. It is probably an exaggeration to claim that “...under the vines are usually sprayed with a herbicide ...”, as there are many organic and semi-organic growers in the region. Consider “sometimes” or even “often”. B6-38

3.5-2, third and fifth paragraphs. Please consider removing all of the quotation marks. B6-39

3.5-4, third paragraph, first sentence. Calistoga will probably be surprised to find it is not in the Napa valley. Is this supposed to read “... extended from St. Helena to Calistoga ...”? B6-40

3.5, Figure 3.5-2. The figure includes 1380 Main Street. Wasn't that the old gas station that has been removed? B6-41

3.6-7, second paragraph,first sentence. Please consider writing out ozone. In addition “higher O3 days” means more days exceeding state and/or federal standards, higher concentrations or both? B6-42

3.6-8, Energy Star Program, second to the last sentence. Please consider deleting “though a Rater” as unneeded. If it is desirable to retain the phrase, consider “as determined by an approved rater”. B6-43

3.6-17,Executive Order S-1-07. Please consider writing out “LCFS” the first time it is used in the paragraph. B6-44

3.6-17, Plan Bay Area, first and third paragraphs. Consider writing out PDA in the first paragraph, rather than the third. B6-45

3.6-17, BAAQMD, first sentence. As is noted correctly elsewhere in the document, the BAAQMD covers most, but not all of the nine Bay Area counties. Please consider adding “most” to the sentence. B6-46

3.6-26, LU1.A. Consider rewording. State statute allows the division of single family homes into two units (one main unit and an ADU) by right. B6-47

3.6-31, PS1.I. Consider updating the reference to the BAAQMD's 2000 CAP to the 2017 CAP.

3.6.31, CC1.B. Consider updating by deleting the reference to a new transit center. NVTA has a new transit center just off Soscol Avenue in Napa.

3.6-33, CC3.A and CC3.B. Please consider shifting the deadline for these two new programs; while a 2020 target was fine in 2010, it is too short for a GP that will not be adopted until halfway through the

first quarter of 2019. B6-47

3.6-33 and -34, CC4.4 and CC4.J. The first calls for expanding the city's urban forestry program, while the second calls for the establishment of such a program. Shouldn't the policy call for the creation of the program as well as the implementing action if such a program does not exist? And if the program does exist, then the implementing action needs correction. Consider determining which is correct and then crafting the policy and implementing action accordingly.

3.6-36, Impact 3.6-1. Please consider including per year with the emissions target. Note that sometimes it is included in the chapter and sometimes it is not - leading to some possible confusion. B6-48

3.6-39, Transportation Improvements. The Wine Train is not - according to court determination - a transportation service; please do not reference it as such, imply that it is a transportation service or claim it is useable as a transportation service. There is no “Napa Valley Transit Authority”; please correctly reference the agency. Napa County does not provide transit services; thus partnering with the County of Napa will not be successful. NVTA operates all of the public transit based in the Napa communities. B6-49

3.6-44, Plan Bay Area. Please consider rewording. Some sections of the document credit MTC with the RTP/SCS, others credit both MTC and ABAG and this seemingly credits ABAG alone. Consider determining which is correct and remaining consistent. B6-50

3.7-17. Two sections on this page cover the Disaster Mitigation Act. Please consider combining the sections. B6-51

3.7-17, State Multi-Hazard Mitigation Plan, first sentence. Please consider adding “... which allows the state...” after “State of California”. B6-52

3.8-1, bullet points, second to the last sentence. The Pratt Street bridge may well be partially in the city and partially in the county – the county maintains the bridge. Please check and modify the sentence accordingly. B6-53

3.8-2, first paragraph,last sentence. Please consider deleting “... to a limited extent ...” as methane is a hazardous material and is used extensively in residential areas. B6-54

3.8-2, Hazardous Materials Transport, fourth sentence. Please consider deleting “...occasionally runs freight service ...” as it is non-existent in the St. Helena block and has been for years. B6-55

3.8-4,last paragraph, last full sentence. Consider rewording. The next five years would be out to 2023 or 24, not 2020. B6-56

3.8-5, Table 3.8-1. The Noble site at 1132Main Street is listed twice and it is not clear if this is due to an error or two different locations on the same property. The PG&E property is also listed twice, as is the property at 607 Highway 29, under SWRCB and DTSC locations. Are these double listings actually separate sites or the same sites as carried by different agencies? If they are the same sites, the total number of sites as depicted in the paragraph directly above the Table is not correct. The Table does not seem to identify the Mobile station near Inglewood and SR 29 as an SWRCB permitted site but does note it as a LUST site. Please clarify. B6-57

3.8-16, California Health and Safety Code, second sentence. Please consider changing the reference to B6-58

Napa County from Alameda County. B6-58

3.8-27, Impact 3.8-3, first paragraph,next to the last sentence. The St. Helena Catholic School has closed and it is not expected to reopen. B6-59

3.9, Figure 3.9-3. Please consider changing the percentage chance shown in the key for 500-year events to 0.2%. B6-60

3.10-3, Table 3.10-1. Please change “Row” to “ROW” after “Transportation/Road”. B6-61

Figure 3.10-1. Valley View Avenue appears to be incorrectly labeled as Crane Avenue. The incorrect label also appears on other maps (see, for example, Figure 3.11-1), but not all, in the document. B6-62

3.10-14, California Public Utilities Commission, last sentence. According to adjudicated determination, the city has significantly more than “some” authority to regulate particular activities of the excursion rail service – for selected actions, the decision is solely the city's. Please consider deleting “some”. B6-63

3.10-20, LU1.4. Please consider making “LU1.6” the beginning of a new bullet section. B6-64

3.10-21, LU1.E. Please consider making “LU2.1” the beginning of a new bullet section.

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3.10-21, LU5.2. Please consider ending the sentence with one period.

3.11-7 & 8, Table 3.11-3. Please consider clarifying either though a note or an addition to the title that the nose levels were calculated based partly on traffic counts. It is also curious that Note 2 states that the truck volumes were set at two percent for all roadways. However, the truck volumes for Main Street are available from Caltrans and are significantly higher than two percent. Why was the more accurate Caltrans figures not utilized? Further, Note 3 states that the speeds were assigned based on road type while the posted speeds are readily available. B6-65

3.11-19, PS2.D. Is Ldn the same as DNL? If so, please consider being consistent in the use of terms. If not, please include in the definition of terms, Table 3.11-1. B6-66

3.11-20, PS2.H. Please consider deleting “vehicles and motorcycles” as it would likely be illegal to “regulate” them in such a way as to restrict access to residential (or nearly any) publicly owned street which may be adjacent to sensitive receptors, as defined. B6-67

3.1-23,Table 3.11-11. Please see comment for Table 3.11-3. B6-68

3.11-29, first paragraph. This paragraph claims that the proposed plan sets thresholds in CNEL while on page 3.11-19, where the relevant polices of the proposed plan are depicted, the term used, particularly in PS2.C, is LAdn. Are these terms identical? LAdn does not seem to appear in the Definition of Terms, Table 3.11-1. Please consider the consistent use of terms, particularly for the lay reader. B6-69

3.12-2, Table 3.12-1, Please consider deleting “Other:” as it only applies to the fire marshal. B6-70

3.12-6, Libraries, first paragraph. The data in the paragraph is putatively from the 2015-16 fiscal year, but the year reported in the citation is 2015. Please clarify. B6-71

3.12-7, Table 3.12-3, Community. There are eight bocce courts in Crane Park. B6-7 2

3.12-9,Figure 3.12-2. Please consider identifying Lewis Station. B6-73

3.12-11, first paragraph, second to the last sentence. Why is the city of St. Helena cited when the section references state code dealing with school districts? B6-74

3.12-12, Napa County General Plan Recreation and Open Space Element. Why is there no reference to the Napa County Regional Park and Open Space District and that agency's adopted parks master plan in any section? B6-75

3.12-16, Fire Service. The data in the paragraph for response times and calls is from 2017, but the citation is 2015. Please clarify B6-76

3.12-16, Police Service. Please consider using information from the recent SHAPE study on the adequacy of the existing station. B6-77

3.12-19, second paragraph, first sentence. Please reword. There are two state parks, not regional parks, in Napa county just outside St. Helena. Both are operated under contract to the state by the Park and Open Space District. B6-78

3.13-2, last paragraph. While it is true that the most of the jobs available in St. Helena do not pay sufficiently to afford a home in the community thus exacerbating the in in-commute as the paragraph correctly claims, it is also likely that the high housing costs also, but to a lesser degree, exacerbate the out-commute for those who seek and need a higher-paying job to live in the community than is generally offered locally. Thus the high housing costs contribute not only to a higher in-commute but a higher out-commute as well. B6-79

3.13-3, SR 29, first and third sentences. Please consider rewording. SR 29 in Napa county is not solely a two to four lane rural highway. It also has a freeway segment, an expressway segment and some other types of roadways. In addition, consider rewording the third sentence as the turn lane is not continuous between Dowdell and Madrona – it is missing or has a double-double yellow in two locations. B6-80

3.13-3, SR 29, second paragraph. Please consider providing evidence that X-X trips are presently diverting in significant numbers to local roadways in the city. Without such evidence, an old chestnut is reenforced that can lead to unhelpful projects and programs. It may become a problem in the future, but currently the traffic on those streets appears to be almost purely local. B6-81

The Silverado Trail is a special case, in that it works as nearly a couplet with SR 29 and given the very small length of the Trail that is within the city – the trips on the Trail for the City are nearly all X-X, X-I or I-X with no or nearly no I-I trips possible.

3.13-3, SR 29, last paragraph. Please reword. The channelization project actually goes back three decades to a time when maintenance projects were listed in the STIP and were debited to the county minimums. The project was split into two pieces and the first segment was completed in the 90's (Yountville to Mee Lane). When the STIP and SHOPP were split, the second half did not migrate to the SHOPP until the Napa communities traded the STIP funds to the Trancas/29 interchange to fill a shortfall and requested moving the Mee Lane to Charter Oak segment to the SHOPP. It may well have B6-82

been the oldest STIP/SHOPP programmed project in the state by the time it was actually constructed. B6-82

3.13-4,Figure 3.13-1. The figure includes and rates several private roads. Is that intentional? In addition, please consider the rating of Madrona west of Hudson. It has few houses but sizable vineyards face the street. The city may also have an agreement with one of the adjacent owners on the character of the street, which is intended to be rural, not residential. B6-83 B6-84

3.14-6, Madrona Street/Fulton Lane, last sentence. Please consider removing the quotes around dead end. B6-85

3.13-16, second paragraph, second sentence. Please consider another example that is a public and not private road. B6-86

3.13-17, Rail Service. The Wine Train is not a passenger service, please consider another term for its ridership. B6-87

3.17-20, Environmental Assessment Review and Comment, last sentence. Please consider replacing "Rohnert Park" with "St. Helena". B6-88

3.17-21, first paragraph,last sentence. Please consider deleting as it has noting to do with the STIP and Caltrans duties and powers were described in an earlier section. B6-89

3.17-22, Metropolitan Transportation Commission. Please consider rewording. MTC does not allocate funds under the control of transportation sales tax authorities, which is a very large portion of the funds expended on transportation projects in the Bay Area. The RTP is not an allocation document and in and of itself releases no funds. It does allow projects to proceed to programming and allocation in other documents and programs. B6-90

3.13-17, NVTA. Please consider rewording to be very clear which agency is discussed - and why the other is not. There are two NVTAs in the Napa communities. One is a transportation sales tax authority and the second is a joint powers agency that provides transportation planning, transportation programing, transit operations and the occasional transportation project for the Napa communities. They are independent entities with separate boards. It appears the section is concerned with the joint powers agency, not the transportation sales tax authority. In addition, the Napa communities do not have a CMA, having opted out of the requirement two decades ago. B6-91 B6-92

3.13-24, Significance Criteria, Criterion 5 & 6. Please consider moving the "or" on 6 to 5 and ending 6 with a period. B6-93

5-2, Population, first paragraph, third sentence. Please consider rewording. The stated historical growth rate of 0.16 percent per year is much smaller than the 0.60 percent rate projected. Although the 0.44 difference does not sound like much, it is an increase of 275 percent over the historical rate. That large of a change probably does not qualify as "slightly". What does ABAG predict for St. Helena, not Napa county? B6-94

5-3, Table 5.1-1. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, centering St. Helena and Planning Area over their relative sections of the chart, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Housing Units and Population under St. Helena and under Planning Area (should these be ones?) and deleting the superscript three for Planning Area. B6-95

5.3, Public Facilities and Services, second to the last sentence. Please consider rewording as it implies B6-96

the city owns a solid waste facility. B6-96

5.5, Table 5.1-2. Please consider adding a vertical line between the figures for St. Helena and those for the planning area, using exact figures, not rounding to the nearest one hundred, deleting the superscript two for Jobs (which presently means it applies to all figures on the Jobs row) and explaining how one reasonably presents a ratio with two significant figures when the figures from which the ratio is defined are rounded to the nearest one hundred. B6-97

5.5, Cumulative Analysis, second sentence. Please add a comma after “air quality”. B6-98

5.7, Cumulative Effect on Cultural, Historic and Tribal Resources, last sentence. Please replace “I” with “is”. B6-99

5.9, Wastewater Treatment and Distribution, first sentence. Please consider deleting “other” as it implies that the St. Helena treatment facility is regional in nature. B6-100

Comment Letter B7-A

B7-A-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: December 30, 2018 at 9:30:33 AM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>" <NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>
Subject: FYI - bad reference in appendix to draft EIR

Noah,

B7-A-2

FYI, on pages A-4 and A-5 of the appendix to the draft EIR there are two references to Chalk Lane. The correct name is Chaix Lane.

B7-A-3

Mark

Mark Smithers | Senior Vice President, Finance
Trinchero Family Estates
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msmithers@tfewines.com<mailto:msmithers@tfewines.com>

Comment Letter B7-B

B7-B-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: December 30, 2018 at 9:30:33 AM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>" <NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>

B7-B-2

Subject: A-14 of the appendix reads "sonoma county"

B7-B-3

Mark Smithers | Senior Vice President, Finance
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Comment Letter B7-C

B7-C-1

From: Mark Smithers <msmithers@tfewines.com<mailto:msmithers@tfewines.com>>
Date: January 2, 2019 at 5:52:13 PM CST
To: "NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>"
<NHoush@cityofsthelena.org<mailto:NHoush@cityofsthelena.org>>
Cc: Pamela Smithers <psmithrs@comcast.net<mailto:psmithrs@comcast.net>>
Subject: comments to the 2040 General Plan and Draft Environmental Impact Report

Noah,

We hope your day is going well.

We have the following comments with regards to the draft EIR and General Plan.

B7-C-2

Guiding Principles and Objectives

First and foremost, the "guiding principles" of the 2040 General Plan beginning on page 1-14 and summarized in the draft EIR as "objectives," do not specifically speak to neighborhood livability. Protecting and improving the livability of our neighborhoods should be a top priority and be listed as an important guiding principle and objective of our 2040 General Plan.

Housing and housing impacts

Tables ES-1 and ES-2 of the draft EIR provide build out information. ES-1 provides that 300 additional housing units with an increased population of 700 at 2040 build out. ES-2 suggests 900 additional jobs at build out. This draft GP doesn't adequately balance anticipated future housing and job growth with infrastructure changes. Additional housing units and jobs will only exasperate the (current) sub-par housing and traffic situation. It is understood that the housing element is currently in the process of update. The GP needs to address the housing issue, and its impacts, head on and not leave it for later. Draft EIR areas of controversy note that traffic impacts from future development will exasperate the existing traffic issues. As such, circulation, local traffic, and neighborhood traffic impacts need strengthened directives within the appropriate GP elements. Planned improvements in the GP need to ensure successful results of better circulation: increased biking, walking, safe routes to school, and additional outside opportunities.

Circulation

The draft GP Circulation Section provides for "potential future road extensions." The road extensions (better described as connections as they are connecting the town together) are described as "Study Alternatives." These road connections (including a fully implemented Oak Street connection) have been reviewed and discussed since 1993. In-town traffic and circulation was bad then and has become nearly unbearable. The connections do not need to be "studied" any longer. The GP language should be stronger and note an immediate need to implement our connectivity. Additionally, the noted "special studies" should only be limited to the bike and walking infrastructure associated with the road

B7-C-2

extensions. Any infrastructure improvements should be subject to standard review with no special limitation or additional requirements.

Alternatives to the Proposed Plan in the draft EIR includes transportation network enhancement alternatives, including a full Oak street connection from Grayson to Mitchell. This alternative is absolutely correct, as per the 1993 General Plan. The circulation element needs to be updated and include this full street connection. St Helena needs to improve in-town circulation for it citizens coming in to and out of town. The Oak Street connection from Grayson to Mitchell is not about relieving traffic from SR-29, it is about in-town circulation and, most importantly, reducing local Vehicle Miles Traveled (VMT). If we have any hope of improving our local air quality and addressing our climate impacts we must reduce VMTs within our city limits. Improved circulation and adopting all the street connections included in the previous General Plan, including the Oak Street extension, will help us in these efforts.

Traffic safety and noise in residential neighborhoods

Various elements of the Plan should specifically provide how the City plans to control and mitigate the impacts of traffic noise and safety on neighborhoods. Residents have the right to the peaceful enjoyment of their properties. Plan elements need to ensure that neighborhoods and homes are not degraded by unsafe traffic, noise, air quality, development, and inappropriate zoning or uses contiguous to the streets we live on and where our kids play or go to school. Traffic issues within certain neighborhoods were acknowledged in the 1993 plan and subsequent analysis in 2006 and 2009. The GP needs to be more specific in directing how our in-town and through-town traffic issues will be mitigated to ensure safety and health. Getting folks out of their cars is a high priority of the Draft GP. We cannot accomplish this priority with high traffic streets and speeding cars. The GP needs to adopt stronger more specific guidance on neighborhood traffic issues.

The draft GP Circulation Section is practically silent as to one of the most pressing problems in St Helena now, and likely to grow in the future, and that is, traffic volumes and speeds in residential areas. The Circulation Section states "continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas". The GP does not, but should, address what types of measures could be utilized for traffic calming, what the policies are, and how those policies will be implemented to improve neighborhoods and pedestrian and bicyclist health and safety. The Nov, 2009 Fehr and Peers Transportation Report (included in the Appendices) identified excessive speeding and suggested "traffic calming measures which involve changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut through volumes, in the interest of street safety, livability and other public purposes". The GP should identify specific types of traffic calming strategies for the most impacted cut-though residential neighborhoods; since this issue is predicted to only get worse in the future, metrics which would measure successful implementation could be useful.

Air Quality Issues/Measurements

The draft EIR addresses Air Quality and Energy, Greenhouse Gases, and Climate Change. As the draft EIR notes, both our current status and GP build out violate BAAQMD standards. This is obviously not acceptable. The 2040 GP as drafted is a health risk to current and future residents. The GP needs to address and mitigate these health risks before the Plan is adopted. Potential solutions that should be noted in the GP include limiting pesticide and herbicide use, reducing cultivation to significantly reduce airborne particulate matter, requiring alternative energy for all new construction or significant building improvements and remodeling, requiring all residences, businesses, government facilities to adopt 100%

MCE clean green, reducing cut through traffic and adding new EV charging stations. In the meantime, an air quality monitoring station should be initiated at the SH Primary School. This school is for 4-7 year olds and is adjacent to one of the (now) busiest residential streets in St Helena. This street has become the cut through street for residents and workforce alike, and the children at the school are outside on their playground adjacent to S Crane several times a day. The City needs to mitigate the impacts to these small children. B7-C-2

SHUSD Mitigation Measures Identified in Negative Declaration

The GP should include a plan to require the SHUSD to implement the required traffic mitigation measures associated with the Primary School construction and the Negative Declaration Report the SHUSD issued at that time. The City and SHUSD have allowed the required mitigation measure for the additional school traffic to go unmet. Implementation of the required mitigation measure will help the City achieve its 2040 GP goals of in the areas of Air Quality, Climate Change, Traffic, Safety, Health, and Livability.

Please confirm receipt of this email. B7-C-3

Thank you in advance for your efforts on this very important and long over due project.

Mark and Pam Smithers

This email is sent from an employer address and only represents the thoughts of the sender.
Mark Smithers | Senior Vice President, Finance
Trinchero Family Estates
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Comment Letter B8

B8-1

Please consider these written public comments concerning both the General Plan Update and the corresponding Draft Environmental Impact Report. My comments are limited to the statutory requirement that a General Plan Update (GPU) include a map, diagram or other method of showing the inundation areas in the event of the failure of the St Helena levee and/or flood wall.

I have made comments on this subject numerous times during previous comment periods related to General Plan Updates and their corresponding Draft Environmental Impact Reports (DEIRs). The first time this issue was raised was during the public comment period ending in July 2016. The most recent oral comments made prior to the release of the 2040 GPU were at the Joint Meeting of the Planning Commission and the City Council to review the General Plan on August 14, 2018.

B8-2

When the 2040 GPU was released on October 23, 2018, I was out of the country. Upon my return to St Helena I notified Noah Housh by email on 11-20-18 that the updated General Plan Safety Element still did not include the areas of inundation in the event of a levee and/or flood wall failure. The statutory requirement for this appears at Government Code §65302(g)(2)(A)(viii). This requirement is also confirmed in the recently updated version of the Governor's Office of Planning and Research's General Plan Guidelines at page 143.

At the Planning Commission meeting on December 4, 2018, which was agendized for the purpose of taking public comment on the DEIR, I again made oral public comments on the lack of the required levee and flood wall failure areas of inundation. There was some discussion as to whether or not the levee protection map would suffice to satisfy this requirement. I pointed out that the map of the levee protection zones are separately required under Government Code §65302(g)(2)(A)(vii). One of the reasons there is a separate requirement for areas of inundation in the event of a levee or flood wall failure is because the force of the water and the damage it can cause are significantly greater in the even of a levee or flood wall failure than what would happen during a flooding event. The inundation map is not just the converse of the levee protection areas and wouldn't take into account what would happen in the event of a flood wall failure, which is also a requirement of Government Code §65302(g)(2)(A)(viii).

B8-3

The legislature would not have specifically required areas of inundation in the event of a levee and/or flood wall failure if there wasn't a need to have that information. But even if it was not such a requirement, the City should be interested in including that information for both safety and financial reasons.

Not only does the City need the information, but every resident impacted by a potential levee or flood wall failure deserves to know what the potential danger is for them. Especially important is the fact that many of those who would be imperiled by a levee or a flood wall failure are some of the most vulnerable in our community. Vineyard Valley, Hunt's Grove, Meadow Creek Circle and a lot of other areas of the eastern part of the City would be significantly impacted and they all deserve to know what the possibilities are. B8-3

During some of the rain storms in recent years, one of the City's main across-city access points between Highway 29 and the Silverado Trail was destroyed. The Pratt Avenue bridge has remained closed since that time. If there was a flood wall and/or levee failure it likely would cause severe damage to another important access to the Silverado Trail. The Pope Street Bridge is immediately adjacent to the flood wall and is located very close to the levee. A failure of either the levee or the flood wall could jeopardize the viability of and cause severe damage to the Pope Street Bridge, which would be a significant safety problem for the City and all of its residents and visitors.

To further complicate this situation our levee and flood wall are both located in an area of very high and high liquefaction. That information already appears is in the 2040 GPU. Liquefaction is a major and well-known cause of levee failures.

Not only should the General Plan Update include the areas of inundation resulting from a levee and/or flood wall failure, but the Draft Environmental Report should include the potential safety and environmental damage, which could be created when considering the intersection of the levee and flood wall failure inundation map, the liquefaction map (already in the 2040 GPU) and the earthquake map (also included in the 2040 GPU.) For example, this issue should be discussed in the Circulation Element when considering the potential impact of the loss or restriction of the use of the Pope Street Bridge if there is a levee or flood wall failure. There are other areas of the Draft Environmental Impact Report and General Plan Update where these issues should also be discussed. B8-4

Since the land immediately behind the levee is designated medium density residential, the areas of inundation in the Draft Environmental Impact Report must also consider the safety and environmental impacts of any housing being built and asphalt laid behind the levee. It is logical to conclude there would be significantly more damage to the environment if the flood plain behind the levee is built up with housing and asphalt, than the damage that B8-5

what would happen during a levee failure on the current unobstructed flood plain behind the levee. Since this would not be a hypothetical situation since there is a current project planned for that approximate 17 acre site, it must be included in the proposed General Plan Update and Draft Environmental Impact Report. B8-5

Thank you for your consideration. B8-6

Vickie Bradshaw
January 2, 2019

Comment Letter B9

B9-1

From: James Reynolds [mailto:jimpatreynolds01@gmail.com]
Sent: Wednesday, January 02, 2019 1:13 PM
To: Cindy Tzafopoulos <ctzafopoulos@cityofsthelena.org>
Subject: The supposed deadline today for public comments to the General Plan update Environemntal Report and no notice to the public

To: St. Helena City Council via City Clerk January 3, 2019
RE: General Plan 2040 - public comment deadline and notification to the public

Dear Mayor Ellsworth and City Council,
A number of us local residents have been hearing spotty information about a deadline today for us to provide public comments to the Environmental Report for the 2040 General Plan. We are notifying you that many people we know in town cannot find the deadline posted anywhere on the city website. And, we cannot even find anything about submitting comments (examples: how to do it, who to send it to, is there a format to follow, when it's due…). So, is this true?
Some of us may not be computer experts, but quite a few of us searched the city website and see NO notice asking for public comments or a deadline. HOW CAN THE PUBLIC KNOW WE CAN GIVE COMMENTS AND HAVE A DEADLINE WHEN THE CITY AND GP WEBSITE DOES NOT EVEN POST IT? The General Plan will be around for a very long time and will define our city and our childrens city and our grandcildrens city for years and years. You can look on the website for yourselves. We saw nothing. (See below where we printed the image of the Main city website AND the GP website page as it is TODAY). Then, since you are a NEW COUNCIL please start off on the right foot and work hard to make sure you are being transparent and really wanting public input by at least putting it somewhere noticeable on the website.
PLEASE PUT THIS LETTER INTO THE DRAFT EIR AS A COMMENT BECAUSE WE HAVE NOT HAD THE CHANCE TO SEND IN ANYTHING BECAUSE WE DIDN'T KNOW ABOUT IT. We want to make sure it goes on the record that we feel we were not notified.

Thank you very much Council.
Jim and Pat Reynolds, and friends, and neighbors, in St. Helena

B9-2

This is a picture of the General Plan page TODAY

Supporting Documents

St. Helena 2040 General Plan Draft_ October 2018 (24 MB)
St. Helena 2040 General Plan dEIR_ October 2018 (41 MB)
St. Helena 2040 General Plan dEIR_ Appendices_ October 2018 (32 MB)
Notice of Availability- Draft Environmental Impact Report_October 2018 (137 KB)
St. Helena General Plan NOP- April 2018 (637 KB)
St Helena draft 2035 General Plan Update - June 2017 draft (24 MB)
St. Helena draft 2035 General Plan Update - April 2016 draft (36 MB)
Summary of Key Changes - April 2016 (116 KB)
St. Helena General Plan Update Revised Draft EIR (RDEIR) - May 2016 (65 MB)
Notice of Availability - St. Helena RDEIR - June 2016 (50 KB)

This is a picture of the MAIN CITY WEBSITE page TODAY. There is NO notice in Community News about a public comments or a deadline.

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CALIFORNIA

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St. Helena Community News

- NAPA COUNTY PRESS RELEASE | Freezing temperatures forecasted for Napa County beginning Fri
- PRESS RELEASE | Local Non-Profits Encouraged to Submit Grant Applications to City of St. H
- C-82 Downtown Restrooms (Rebid)
- Notice and application to fill a vacancy for a member of the City Council by appointment

View all News

B9-2

Upcoming Events Calendar

- Bingo Night Hosted by Soroptimist St. Helena Sunrise

  01/18/2019 - 6:00pm

- Martin Luther King Day Holiday

  01/21/2019 - 12:00am

- President's Day Holiday

  02/18/2019 - 12:00am

- Cesar Chavez Day Holiday

  03/31/2019 - 12:00am

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Events Calendar

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Contribute a better translation

Comment Letter B10

B10-1

PLANNING COMMISSION MEETING EIR COMMENTS SUMMARY

On December 4, 2018, the St. Helena Planning Commission held a regular Planning Commission meeting to receive comments on the Draft EIR for the General Plan Update. The meeting took place at 6:00 pm at 465 Main Street in St. Helena. The agenda, minutes, and video recording for the meeting can be viewed on the City's website at https://sthelena.civicweb.net/Portal/MeetingInformation.aspx?Id=368. Comments received at the meeting are summarized below.

Public Comments

Vicki Bradshaw, Resident

California Government Code Section 65302(g)(1)(A)(VIII) requires cities with a housing element update after 2009 (St. Helena's Housing Element was updated in 2015) with floodwalls and/or levees to show "areas subject to inundation in the event of the failure of the project or non-project levee or floodwall" in the safety element of the general plan, and the Office of Planning and Research recently issued updated general plan guidelines reconfirming the statutory requirement for inclusion of a levee/floodwall failure map.

The Proposed Plan does not currently include a levee/floodwall inundation map, but the map is important to have for safety and financial reasons. Vineyard Valley, Hunt's Grove, Meadowcreek Circle, and other areas in East St. Helena would be directly affected by a levee or floodwall failure and residents have a right to know what potential safety problems they may have. The levee/floodwall is located in areas mapped as having high and very high liquefaction hazard, and liquefaction is a well-known cause of levee and floodwall failure. In the July 25, 2016 public comments to the earlier Draft EIR for the General Plan Update at that time, there was a USGS satellite map of Napa and St. Helena that showed significant ground moving in the area of the levee at the time of the 2014 Napa earthquake, suggesting that had there been rain, there could have been liquefaction in that area with the potential to damage the levee/floodwall.

B10-2

A levee/floodwall failure inundation map is important for financial reasons, as many residents gave up flood insurance when the levee was built, and they have the right to know the potential financial damage they might experience in the event of a levee failure. St. Helena took $12 million in loans and grants from the State to build the Flood Control Project. As a result, the California Legislature passed and the Governor signed AB 1898, codified in California Water Code Section 12748.3, which states that,

> "…The State may provide funds in accordance with section 12585.7 to the City of St. Helena or to local agencies in the County of Napa for the project for flood control on the Napa River in the County of Napa. (c) A county or local agency may receive the funds only if it enters into an agreement with the Department [of Water Resources] pursuant to which the city or the local agency agrees to indemnify and hold and save harmless the State, its officers, agents, and employees, for any and all liability for damages that may result from the project. (d) For the purposes of this section, liability for damages includes, but is not limited to liability for damages relating to the construction or operation of the project or the failure of the project to operate as intended."

The City has indemnified the State in the event of a levee or floodwall failure so the financial responsibility would be entirely the City's, and residents have a right to know the potential damages there could be in the event of a levee/floodwall failure and the resulting potential financial liability of the City. B10-3

Inclusion of the required inundation map in the Proposed Plan should also involve a change to the EIR to discuss safety problems and potential environmental damage considering the intersection of the levee/floodwall failure inundation map, the liquefaction map, and the earthquake map. The EIR should also include comments as to the safety and environmental impacts in the event of a levee failure if housing and asphalt is built behind the levee, as the area would be designated Medium Density Residential, and the currently unobstructed floodplain would be negatively impacted. When the map is included, it should be considered a substantive change and trigger a new public comment period as it would be unfair to insert a map after the close of the comment period and not allow the public to comment on the source and adequacy of the map and EIR analysis.

The Government Code section also requires that cities show levee protection areas, which is different from areas subject to inundation. There is also a requirement that if a dam is present, there should be a dam failure inundation map, which has been included in this EIR. If there are levees with areas subject to inundation, a separate chart or description is required because if a levee fails, the water can be much more forceful and can create more damage than just normal flooding. B10-4

Planning Commission Comments B10-5

John Ponte, Planning Commissioner

- Regarding Mitigation Measure MM-AQ-2, is there a State law or Air District requirement that the submittal be to the Bay Area Air Quality Management District (BAAQMD)? He was concerned that everyone building a new home would have to make the submittal, and if so, he would prefer that the submittal be made locally to the City rather than involving BAAQMD and creating additional requirements and expenses for an applicant.
- Regarding Mitigation Measure MM-AQ-3, he sought to confirm that the number of these point sources would be very low. B10-6
- Regarding Mitigation Measure MM-AQ-6, is this mitigation measure statutory? Under this measure, every building project in the city would have to do a health risk assessment because everyone is within 1,000 of a residence, school, or other sensitive receptors. This could cost lots of money if all projects have to go through this. B10-7
- Regarding MM-GHG-1, why are we writing a Climate Action Plan that might not reach the target that the State has set, which it has not yet set? How would this mitigate the impact, and how would you assess the success of the mitigation since the State has not set targets, goals, or a way of reaching those targets and goals? Ninety percent of control measures would be at the State or regional level anyway, and the City would have a hard time meeting the targets based on what's under its control. B10-8
- Regarding Impact 3.13-2, the Napa Valley Transit Authority (NVTA) is not a congestion management agency (CMA). The County opted out of having a CMA and has no B10-9

congestion management plan (CMP). Since there is no CMP, this impact should be written similar to the airport section. B10-9

- Regarding transportation mitigation measures on page 3.13-44, the mitigation measure call for two new signals. As part of the analysis, the team looked into what happens to the string of signals as a whole with the two added signals. The only problem is that there is at least one intersection where the delay is so high it is reported as >120 seconds, which means that that is the edge of analysis for the software. Beyond 120 seconds could mean 121 seconds or 1,001 seconds. Does this analysis account for delays above 120 seconds? If it is in reality much longer, the mitigation measure can cause a cascading set of failures. For example, at Grayson/Main, the analysis finds that even though the individual intersection looks like it will pass, the delay at Pope/Main is so long that it causes problems at Grayson/Main. If the delay at Pope/Main exceeds the limits of calculations and could cause a cascade of failures. Also, at Main/Sulphur and Main/Pratt, would the mitigation measure make things worse? B10-10
- Regarding MM-TR-3, this reads as though at least one set of extensions must be implemented. In approving the environmental document, are these extensions also being approved? B10-11
- Regarding MM-TR-5, the signalization of Silverado/Pope may not be feasible without replacing the operationally deficient bridge, as the bridge approach is narrow and inadequate. B10-12
- Regarding Impact 3.13-5, there seems to be a disconnect between the conclusion for Impact 3.13-1, which finds a significant and unavoidable impact for level of service, and this conclusion, which is less than significant for emergency access. How are the same set of operationally deficient roads ok for emergency access? If there is a need for a satellite fire station under current conditions, then in 2040, with no through streets on either the west or east side of 29 and worse traffic, how would emergency access for fire, police, and other emergency services not be affected? The analysis indicates congestion and LOS F on 29 and parts of town cannot be reached without 29, so those sections of town could have a problem. This impact may be significant and unavoidable, and mitigation should be the same as MM-TR-3. B10-13

David Knudsen, Planning Commissioner

- Figure 3.13-1: Roadway Classification has an error in the depiction of Vallejo near Sulphur Spring. It should match Figure 3.13-2. B10-14

Lester Hardy, Planning Commissioner

- Regarding Impact 3.13-5, how can there be adequate emergency access if emergency vehicles have to go to Deer Park to access parts of the city? B10-15

Bobbi Monette

- How does the analysis account for significant impacts that could be caused by implementation of the mitigation measures? B10-16

St. Helena General Plan Update 2040

DRAFT ENVIRONMENTAL IMPACT REPORT
SCH# 2010042001

October 23, 2018

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Executive Summary

This Draft Environmental Impact Report (EIR) evaluates the potential impacts of the proposed St. Helena 2040 General Plan update, referred to as the "Proposed Plan." The Proposed Plan was developed in response to policy direction provided by the City Council, Planning Commission, and community. This Draft EIR has been prepared on behalf of the City of St. Helena, in accordance with the California Environmental Quality Act (CEQA). The City of St. Helena is the lead agency for this EIR, as defined by CEQA.

An EIR is intended to inform decision-makers and the general public of the potential significant environmental impacts of a proposed project. The EIR also considers the availability of mitigation measures to minimize significant impacts and evaluates reasonable alternatives to the Proposed Plan that may reduce or avoid one or more significant environmental effects. Based on the alternatives analysis, an environmentally superior alternative is identified.

This EIR is a program EIR that examines the potential effects resulting from implementing designated land uses and policies in the Proposed Plan. The impact assessment evaluates the Proposed Plan as a whole and identifies the broad, regional effects that may occur with its implementation. As a programmatic document, this EIR does not assess site-specific impacts. Any future development project made possible by the Proposed Plan would be subject to individual, site-specific environmental review, as required by State law. This EIR represents the best effort to evaluate the Proposed Plan given its planning horizon through the year 2040. It can be anticipated that conditions will change; however, the assumptions used are the best available at the time of preparation and reflect existing knowledge of patterns of development.

Proposed Plan

The Proposed Plan is intended to respond directly to emerging trends and topics in St. Helena since the preparation of the current General Plan (adopted in 1993), and to plan for city growth projected in coming decades. The Proposed Plan, which establishes a long-range planning framework and policies, would fully replace the City's existing General Plan if adopted by the City Council.

The General Plan update was initiated to comprehensively examine the existing conditions in the city and to create a vision for the city's future. Although the Proposed Plan does not specify or anticipate when buildout of the city will occur, a horizon of year 2040 is assumed for planning purposes. The purpose and objectives of the Proposed Plan, included below, underpin the policies and implementing actions of the Proposed Plan.

Planning Area

The Planning Area encompasses 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas. Although St. Helena does not have jurisdiction in areas outside of its city limits, the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities, to the three adjacent study areas. As such, what happens in those areas bears a relation to the City's planning and must be considered in the General Plan, per California Government Code Section 65300.

Purpose

California Government Code Section 65300 requires each city and county in California to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which…bears relation to its planning." The St. Helena General Plan can be considered the city's development constitution, containing both a statement of the community's vision of its long-term development as well as the policies to support that vision by guiding the physical growth of the city. The Proposed Plan contains policies to guide decision-making related to development, housing, transportation, environmental quality, public services, parks, and open spaces. The Proposed Plan is a document to be adopted by the City Council that serves the following purposes:

- Establish a long-range vision that reflects the aspirations of the community and outlines steps to achieve this vision;
- Establish long-range development policies that will guide City departments, Planning Commission, and City Council decision-making;
- Provide a basis for judging whether specific development proposals and public projects are in harmony with plan policies;
- Plan in a manner that meets future land needs based on the projected population and job growth;
- Allow City departments, other public agencies, and private developers to design projects that will enhance the character of the community, preserve environmental resources, and minimize hazards; and
- Provide the basis for establishing and setting priorities for detailed plans and implementing programs, such as the zoning ordinance, subdivision regulations, specific and master plans, and the Capital Improvement Program.

Objectives

The Proposed Plan provides the basis for the City's land use and development policy and represents the basic community values, ideals, and aspirations that will govern development and conservation. Specific objectives established for the project include the following:

1. Encourage infill development in previously developed areas of the city to preserve agricultural and open space lands outside the urban limit line and foster a compact development pattern;
2. Focus future development so that it is contiguous to existing developed areas and supports efficient delivery of public services and infrastructure;
3. Preserve St. Helena's small-town character;

4. Protect local historic resources and preserve St. Helena's agricultural heritage;
5. Reduce traffic congestion by providing alternative transportation choices, enhancing regional public transit connections, and achieving an appropriate jobs-to-housing balance to reduce commuter trips;
6. Protect and enhance the natural resources—including the riparian corridors, woodlands, flora, and fauna—that contribute to St. Helena's healthy environment, scenic beauty, and quality of life;
7. Strengthen St. Helena's role as a rural commercial and business center serving the daily needs of local residents in town and in the surrounding unincorporated communities;
8. Cultivate a healthy and diverse local economy;
9. Promote sustainable, low-impact tourism that contributes to the local economy while maintaining St. Helena's character;
10. Provide a high-quality network of parks, open spaces, and trails that enhances quality of life and connectivity in the community; and
11. Foster a vibrant arts community that contributes to the local economy and enriches the cultural life of the community.

Estimated Buildout of the Proposed General Plan

Buildout refers to the estimated amount of new development and corresponding growth in population and employment that is likely to take place under the Proposed Plan through the planning horizon year of 2040. Buildout estimates should not be considered a prediction for growth, as the actual amount of development that will occur through 2040 is based on many factors outside of the City's control. Therefore, buildout estimates represent one potential set of outcomes rather than definitive figures. Additionally, the designation of a site for a specific land use in the Proposed Plan does not guarantee that a site will be developed or redeveloped at the assumed density during the planning period, as future development will rely primarily on each property owner's initiative. Buildout projections of this EIR do not include the total amount of potential development that could be accommodated by the Proposed Plan. Rather, the buildout assumes that only a portion of the total potential development will occur by 2040.

Table ES-1 Residential Buildout (2040) describes the estimated housing units and population anticipated at buildout of the Proposed Plan according to analysis undertaken for the Proposed Plan. Table ES-2: Projected Jobs at Buildout (2040) describes the potential jobs anticipated to result from non-residential development shown on the proposed Land Use Diagram on vacant and underutilized sites.

Table ES-1: Residential Buildout (2040)

	St. Helena		*Study Areas*		*Planning Area Total*	
	Housing Units[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]
Existing (2018)[3]	2,700	5,900	200	600	2,900	6,400
Future Development[4]	300	700	100	200	400	900
Total at Buildout	**3,100**	**6,600**	**200**	**700**	**3,300**	**7,300**

Notes:

1. Figures are rounded to the nearest hundred and may not sum due to rounding.
2. Figures are rounded to the nearest hundred and may not sum due to rounding.
3. Existing residential units within the city of St. Helena were adjusted with reference to data from the California Department of Finance, the Association of Bay Area Governments, and the Napa County Assessor, updated with 2018 parcel data from the Napa County Assessor.
4. Future population was calculated assuming 2.45 persons per household in the city and 2.69 persons per household in the study areas.

Source: Dyett & Bhatia, 2018

Table ES-2: Projected Jobs at Buildout (2040)[1]

	St. Helena	*Study Areas*	*Planning Area Total*
Existing (2018)[3]	5,400	500	6,400
Future Development[2]	900	100	900
Total at Buildout	**5,900**	**1,100**	**7,000**

Notes:

1. Figures are rounded to the nearest hundred and may not sum due to rounding
2. Includes pipeline development
3. Employment assumptions were calibrated with reference to County Assessor data and the ABAG Projections 2013 dataset.

Source: Dyett & Bhatia, 2018

Alternatives to the Proposed Plan

The following alternatives are described and evaluated in this EIR, and are summarized in Table ES-3: Comparison of Key Characteristics; Existing, Alternatives, and Proposed General Plan.

Transportation Network Enhancement Alternative

The Transportation Network Enhancement Alternative proposes improvements to the transportation network to facilitate access through the community for local residents traveling by all modes of transportation. Specifically, Oak Avenue would be extended south from its current terminus at Mitchell Lane to Grayson Avenue in order to relieve vehicle congestion and queuing on SR 29 and to improve bicycle and pedestrian access to St. Helena Elementary, Robert Louis Stevenson Middle School, and St. Helena High School.

The new roadway would be constructed as a two-lane Downtown/Mixed Use Street with bicycle lanes and sidewalks, consistent with the City's Engineering Standards, and a bridge would be constructed over Sulphur Creek. The roadway would be designed to provide a high-quality bicycle and pedestrian connection to Downtown St. Helena, with a full Class I path along the west side of the street. Traffic calming measures, such as speed lumps, bulb outs, and/or chicanes would be constructed to limit travel speeds between intersections and optimize safety for all roadway users. Connection to the Vine Trail would also be provided.

Under this alternative, citywide capital improvements to expand the existing bicycle network would still be constructed, as under the proposed plan to provide safe, convenient access to destinations throughout the community and to encourage the use of bicycles as a non-automotive means of transportation. Additionally, the proposed Mixed Use land use designation would still be applied to encourage a mix of uses at infill locations in central St. Helena and provide for housing opportunities in close proximity to services and retail. Other policies and actions would be as under the proposed Plan. Overall, as with the Proposed Plan, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, 335 housing units, and 935 new jobs in St. Helena and its SOI by 2040.

No Project Alternative

Consistent with Section 15126.6(e)(2) of the CEQA Guidelines, under the No Project Alternative, the Proposed Plan would not be adopted. The City's current General Plan land use map would remain in use, and future development in the Planning Area would continue to be subject to existing policies, regulations, development standards, and land use designations of the existing St. Helena General Plan and Municipal Code. Specifically, there would be no new Mixed Use land use designation, the Medium Density Residential density range would remain 5.1 to 12.0 units per acre, and the High Density Residential density range would remain 12.1 to 20.0 units per acre. All Proposed Plan change areas as identified in the Proposed Plan would retain their existing 1993 General Plan designations. Policies concerning topics such as transportation, economic development, parks, open space, the environment, health, and housing would also remain unchanged, and there would be no alterations to the Urban Limit Line.

Overall, the No Project Alternative is projected to result in approximately 460 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. Growth in the study areas would be the same as under the Proposed Plan.

Table ES-3: Comparison of Key Characteristics; Existing, Alternatives, and Proposed General Plan

	City of St. Helena			*Study Areas*			*Planning Area Total*		
	Population	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*
Existing (2018)	5,900	2,700	5,400	600	200	500	6,400	2,900	5,900
Proposed Plan (2040)	6,600	3,100	6,400	700	200	600	7,300	3,300	7,000
Transportation Network Enhancement Alternative (2040)	6,600	3,100	6,400	700	200	600	7,300	3,300	7,000
No Project Alternative (2045)	6,260	2,900	6,180	700	200	1,100	6,960	3,100	7,280

Source: Dyett & Bhatia, 2017

Areas of Controversy

During the drafting of the Proposed Plan and this EIR, public agencies and members of the public were invited to provide feedback on the documents. The following topics were identified as areas of controversy, based on comments at public meetings on the Proposed Plan and at the EIR Scoping Meeting, and responses to the Notice of Preparation (NOP):

- **Traffic Impacts.** Many of the comments addressed traffic impacts, including regarding visitor-generated traffic; existing congestion problems; potential traffic impacts due to increased Wine Train service; level of service non-compliance during peak periods; bike and pedestrian safety, including unsafe roadway crossings; and ease and comfort of crossing streets for pedestrian and bike users. Future development under the Proposed Plan could exacerbate existing congestion problems within the City of St. Helena through growth of population and jobs.
- **Emergency Evacuation and Access.** Impacts to emergency access and evacuation may be impacted under the Proposed Plan. Increased traffic congestion, as noted above, could slow emergency vehicle response times. Potentially impacted areas include Napa River crossing congestion and limited emergency vehicle access to parts of town only accessible by State Route 29.
- **Water Supply.** Early versions of the Proposed Plan led to community concern over availability of water to serve an increased population. Since that time, the City of St. Helena has enacted the Water Neutral Policy for Development, which requires all new development to fully offset new demands on the City's water supply by providing retrofits for existing water users within the City.

Additionally, environmental impacts classified as significant and unavoidable have been identified in the resource topics of agricultural resources; air quality; energy, greenhouse gases, and climate change; and transportation and traffic; and inasmuch as they may be controversial to the general public, agencies, or stakeholders, they are described briefly here.

AGRICULTURAL RESOURCES

Implementation of the Proposed Plan would allow for the conversion of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance to non-agricultural uses. Under the Proposed Plan, urban development could occur on 118 acres of these farmlands designated by the Farmland Mapping and Monitoring Program (FMMP). Urban development could further result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Conversion of agricultural land to urban use is not directly mitigable, as agricultural land is a finite and irreplaceable resource. Beyond limiting the amount of total growth permitted, there are no feasible mitigation measures for agricultural land conversion that would also fulfill the objectives of and implement the Proposed Plan. The impact would remain significant and unavoidable.

AIR QUALITY

Development under the Proposed Plan could violate air quality standards or contribute substantially to an existing or projected air quality violation. Any development under the Proposed Plan that would exceed Bay Area Air Quality Management District (BAAQMD) regional significance thresholds would contribute to the nonattainment designation of the Air Basin, which constitutes an air quality violation. The Air Basin is currently designated a nonattainment area for California and national O3, California PM2.5, and California PM10 AAQS.

Construction activities associated with the Proposed Plan would cause short-term emissions of criteria air pollutants, including the temporary generation of ozone precursors (ROG, NOX), CO, and particulate matter emissions that could result in short-term impacts on ambient air quality in the Planning Area. While policies in the Proposed Plan would enforce air quality standards during construction, with respect to ROG, NOx and PM exhaust emissions, there could be foreseeable conditions under the Proposed Plan where the amount of construction activity for an individual development project, or a combination of these projects, could result in the generation of these pollutant emissions that exceed their respective BAAQMD significance thresholds (54 pounds/day for ROG and NOx, 82 pounds per day for exhaust PM10, and 54 pounds/day for exhaust PM2.5). Emissions of these pollutants may not be reduced to levels below BAAQMD's thresholds when multiple construction projects are concurrently ongoing in St. Helena. Therefore, the Proposed Plan would cumulatively contribute to the nonattainment designations of the Air Basin during construction, and impacts would be significant and unavoidable.

In addition to the short-term construction emissions, buildout of the Proposed Plan would generate long-term air emissions, and has the potential to result in air quality impacts from mobile, area, and energy sources. Future development under the Proposed Plan would be required to comply with applicable air quality plans, State Implementation Plan (SIP), California Air Resources Board (CARB) motor vehicle standards, BAAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the Proposed Plan policies; however, there is no guarantee that emissions would be mitigated below BAAQMD thresholds. Current nonattainment status and projected ROG and PM10 emissions at buildout in combination with past, present, and reasonably foreseeable projects elsewhere within the Air Basin demonstrate that the Proposed Plan, even with implementation of applicable regulations and Proposed Plan's principles and actions that would reduce impacts associated with long-term operational criteria pollutant emissions, would result in a significant and unavoidable cumulative impact with respect to air quality and attainment of such standards.

Therefore, development under the Proposed Plan could result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard, and could violate air quality standards or contribute substantially to an existing or projected air quality violation. Even with the mitigation measures in the Proposed Plan, the impacts would be significant and unavoidable.

ENERGY, GREENHOUSE GASES, AND CLIMATE CHANGE

Through implementation of the Proposed Plan policies aimed at reducing greenhouse gas (GHG) emissions, the Proposed Plan would serve to implement numerous strategies and mitigation measures aimed at reducing these emissions. However, even accounting for State and federal standards and for policies within the Proposed Plan that can be quantified, the resulting 2040 per capita emissions are still greater than the BAAQMD efficiency target and the CARB Scoping Plan target. This means that, absent additional measures at the State level, development under the Proposed Plan would conflict with CARB's 2017 Scoping Plan, AB 32, EO S-03-05, or BAAQMD's CEQA Guidelines, as the City does not have direct control over certain aspects of transportation emissions, such vehicle fuel efficiency standards or regional traffic. Further action is necessary at the State and federal levels to achieve the deep cuts to emissions sources outside the City's jurisdictional control needed to meet the GHG emissions reductions targets laid out by the State. Given that, at this time, there are no post-2030 State or federal measures that would assist the City in achieving the efficiency target in 2040, the potential exists for the Proposed Plan to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact remains significant and unavoidable.

TRANSPORTATION AND TRAFFIC

Implementation of the Proposed Plan would contribute to population and job growth, resulting in projected higher amounts of traffic generation and congestion in the City of St. Helena. More specifically, it would cause a significant impact by causing several local intersections to perform below level of service (LOS) standards established by the City of St. Helena or Napa County, as applicable, causing a conflict with these established measures of effectiveness of the circulation system.

27 intersections were studied as part of the analysis under the General Plan Buildout. Analysis performed assuming no Oak Avenue Extension found significant impacts at seven intersections, including Main Street/Pratt Avenue, Main Street/Elmhurst Avenue, Main Street/Pope Street-Mitchell Drive, Main Street/Grayson Avenue, Main Street/Sulphur Springs Avenue, and Silverado Trail/Pope Street. Analysis performed assuming completion of the Oak Avenue Extension found significant LOS impacts are three intersections, including Main Street/Pratt Avenue, Main Street/Elmhurst Avenue, and Silverado Trail/Pope Street. The Proposed Plan includes multiple policies and implementing actions that would seek to minimize this congestion on the transportation network through a series of efforts to reduce single occupancy vehicle trips, improve circulation throughout St. Helena, and promote walking, bicycling and transit trips as viable transportation options. It also contains multiple implementing actions that identify mechanisms for funding actions designed to alleviate transportation impacts resulting from new development under the Proposed Plan. Nevertheless, even with Proposed Plan policies and implementing actions, impacts at the above stated intersections would be significant.

Further, as Main Street is a State highway (SR-29), mitigation measures along Main Street are subject to Caltrans approval, and thus the construction of the mitigation measures cannot be guaranteed by the City. Additionally, the mitigation measures along Main Street and Silverado Trail may be considered infeasible due to lack of funds to design and construct adequate improvements to accommodate future traffic volumes or due to lack of sufficient right-of-way to

construct needed improvements. Since the City cannot guarantee that the needed improvements will be implemented, the impact is deemed significant and unavoidable.

Impacts Summary and Environmentally Superior Alternative

IMPACTS SUMMARY

Table ES-4: Summary of Impacts and Mitigation Measures presents the summary of the significant impacts of the Proposed Plan identified in the EIR and the Proposed Plan mitigation measures that reduce these impacts. Detailed discussions of the impacts and proposed policies that would reduce impacts are in Chapter 3.

IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines (Section 15126.6) require the identification of an environmentally superior alternative among the alternatives analyzed. Table 4-4.1: Summary of Impacts for Alternatives, summarizes the alternatives' overall environmental impacts for each topic presented in Section 4.3. For the Proposed Plan, six impacts were expected to be significant and unavoidable, three impacts were expected to be less than significant with mitigation, 65 impacts were expected to be less than significant, and three were found to be no impact. For the Transportation Network Enhancement Alternative, seven impacts were expected to be significant and unavoidable, five impacts were expected to be less than significant with mitigation, 62 impacts were expected to be less than significant, and three were found to be no impact. For the No Project Alternative, 11 impacts were expected to be significant and unavoidable, two impacts were expected to be less than significant, 61 impacts were expected to be less than significant, and two were found to be no impact.

While the proposed land use diagrams of the two alternatives and the Proposed Plan are similar, the policies included in the No Project Alternative in many cases do not address the broad range of environmental topics covered by the Transportation Network Enhancement Alternative and Proposed Plan, and are not up to date with current laws and practices concerning environmental impacts. Therefore, of the two alternatives analyzed, the Transportation Network Enhancement Alternative is the environmentally superior alternative. However, while the Transportation Network Enhancement Alternative could relieve impacts related to vehicle congestion and improve access to transportation, making it the environmentally superior of the two alternatives, the extension of Oak Street under this alternative would result in several new potentially significant environmental impacts related to noise, air pollutant and GHG emissions, and hydrology not present with the Proposed Plan.

Overall, the Proposed Project was found to have fewer potentially significant and unavoidable impacts than either the Transportation Network Enhancement Alternative and the No Project Alternative.

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.1 Aesthetics			
3.1-1 Implementation of the Proposed Plan would not have a substantial adverse effect on scenic vistas.	None Required	Less than significant	N/A
3.1-2 Implementation of the Proposed Plan would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.	None Required	Less than significant	N/A
3.1-3 Implementation of the Proposed Plan would not substantially degrade the existing visual character or quality of St. Helena and its surroundings.	None Required	Less than significant	N/A
3.1-4 Implementation of the Proposed Plan would create new sources of substantial light or glare that could adversely affect day- or night-time views in the area.	None Required	Less than significant	N/A
3.2 Agricultural Resources			
3.2-1 Implementation of the Proposed Plan would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	Implementation of the Proposed Plan could result in the loss of 118 acres of Prime Farmland, Farmland of Statewide and Local Importance, and Unique Farmland. Conversion of agricultural land to urban use is not directly mitigable, aside from preventing development altogether, as agricultural land is a finite and irreplaceable resource. Beyond limiting the amount of total growth permitted,	Significant and unavoidable	Significant and unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	there are no feasible mitigation measures for agricultural land conversion that would also fulfill the objectives of and implement the Proposed Plan. The impact would remain significant and unavoidable.		
3.2-2 Implementation of the Proposed Plan would not conflict with existing zoning for agricultural use or a Williamson Act contract.	*None Required*	Less than significant	N/A
3.2-3 Implementation of the Proposed Plan would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.	*None Required*	Less than significant	N/A
3.3 Air Quality			
3.3-1 Development under the Proposed Plan will not conflict with or obstruct the implementation of the applicable air quality plan.	*None Required*	Less than significant	N/A
3.3-2 Development under the proposed General Plan would violate air quality standards or contribute substantially to an existing or projected air quality violation.	**AQ-1:** Require construction projects in the City of St. Helena to implement BMPs to reduce fugitive dust emissions. BMPs may include:	Significant and unavoidable	Significant and unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	• Watering all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) three times per day using recycled water. • Covering all haul trucks transporting soil, sand, or other loose material. • Removing all visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • Limiting all vehicle speeds on unpaved roads to 15 mph. • Completing all roadways, driveways, and sidewalks to be paved as soon as possible. Laying building pads soon as possible after grading unless seeding or soil binders are used. • Minimizing idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of		

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • Maintaining and properly tuning all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper working condition prior to operation. • Staging construction equipment as far as possible from existing sensitive receptors (away from the southeast property line and surrounding residences). • Posting a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.		

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	Where warranted, the project sponsors shall incorporate the following language into construction specifications if significant risk is anticipated based on design level construction schedule, duration and concurrent construction activities: • Powering portable equipment by electricity if available or if electricity is not available, using propane or natural gas if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. • Ensuring that all mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days continuously or 20 hours cumulative meets, at a minimum, U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent and be equipped with diesel particulate matter filters that meet CARB-certified Level 2 or 3 Diesel Particulate Filters. Alternatively-fueled equipment (i.e.,		

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	non-diesel) would meet this requirement. **AQ-2:** Require that applicants proposing development of projects within the City of St. Helena require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the use of low-VOC coatings to BAAQMD prior to the start of construction. **AQ-3:** Require all development applications with the potential to create point-source air quality impacts be referred to the Bay Area Air Quality Management District (BAAQMD) for review and comment to ensure compliance with BAAQMD requirements prior to approval of the project.		
3.3-3 Development under the Proposed Plan would result in a cumulatively considerable net increase of criteria pollutants for which the General Plan	See Mitigation Measures AQ-1, AQ-2, and AQ-3 under Impacts 3.3-1 and 3.3-2.	Significant and Unavoidable	Significant and Unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).			
3.3-4 Development under the Proposed Plan would not expose sensitive receptors to substantial pollutant concentrations.	Mitigation Measures AQ-1, AQ-2, and AQ-3, as listed under Impacts 3.3-1 and 3.3-2, as well as the following measures: **AQ-4:** Require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses, or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures. **AQ-5:** To protect sensitive receptors require discretionary projects in proximity to Highway 29, Silverado Trail and the Rail Corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels **AQ-6:** All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by BAAQMD, shall prepare a site-specific construction health risk assessment (HRA) taking into account both project-level and cumulative health risks	Less than Significant with Mitigation	Less than Significant with Mitigation

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	(including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable.		
3.4 Biological Resources			
3.4-1 Implementation of the Proposed Plan would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service	None Required	Less than significant	N/A
3.4-2 Implementation of the Proposed Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.			
3.4-3 Implementation of the Proposed Plan would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	None Required	Less than significant	N/A
3.4-4 Implementation of the Proposed Plan would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	None Required	Less than significant	N/A
3.4-5 Implementation of the Proposed Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	None Required	Less than significant	N/A
3.4-6 Implementation of the Proposed Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	None Required	No impact	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.5 Cultural, Historic, and Tribal Cultural Resources			
3.5-1 Implementation of the Proposed Plan could cause a substantial adverse change in the significance of a historical resource, as defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired (CEQA Guidelines Section 15064.5).	None Required	Less than significant	N/A
3.5-2 Implementation of the Proposed Plan could cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	None Required	Less than significant	N/A
3.5-3 Implementation of the Proposed Plan would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	None Required	Less than significant	N/A
3.5-4 Development allowed by the Proposed Plan would have the potential to disturb human remains, including those interred outside of formal cemeteries.	None Required	Less than significant	N/A
3.5-5 Implementation of the Proposed Plan could cause an adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: (a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or (b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			
3.6 Energy, Greenhouse Gases, and Climate Change			
3.6-1 Development under the Proposed Plan would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	**GHG-1:** The City of St. Helena shall adopt and begin to implement a Climate Action Plan within a goal of 18 months, but no later than 36 months, of adopting the Proposed Plan update to address the GHG reduction goals of Executive Order B-30-15 and Executive Order S-03-05 for GHG sectors that the City has direct or indirect jurisdictional control over. The Climate Action Plan shall include	Significant and Unavoidable	Significant and Unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	a community inventory of GHG emission sources, and quantifiable GHG emissions reduction targets for 2030 and 2050, and an interim target for the General Plan buildout year 2040, that are consistent with the statewide GHG reduction targets. The City shall monitor progress toward its GHG emissions reduction goals and prepare reports every five years detailing that progress.		
3.6-2 Development under the Proposed Plan would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Refer to Mitigation Measure GHG-1 under Impact 3.6-1.	Significant and Unavoidable	Significant and Unavoidable
3.6-3 Development under the Proposed Plan would not cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance.	None Required	Less than Significant	N/A
3.6-4 The Proposed Plan would not conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2040, or any other applicable energy conservation regulations.	None Required	Less than Significant	N/A
3.7 Geology, Soils, and Seismicity			
3.7-1 Implementation of the Proposed Plan would not expose residents, visitors and employees, as	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
well as public and private structures, to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction, or landslides.			
3.7-2 Implementation of the Proposed Plan would not result in substantial soil erosion or the loss of topsoil.	None Required	Less than significant	N/A
3.7-3 Implementation of the Proposed Plan would not result in development located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Plan, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	None Required	Less than Significant	N/A
3.7-4 Implementation of the Proposed Plan would not locate structures on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	None Required	Less than significant	N/A
3.7-5 Implementation of the Proposed Plan would not locate structures on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	None Required	Less than significant	N/A
3.8 Hazards and Hazardous Materials			

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.8-1 Development under the Proposed Plan could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	None Required	Less than significant	N/A
3.8-2 Development under the Proposed Plan would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	None Required	Less than significant	N/A
3.8-3 Development under the Proposed Plan could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	None Required	Less than significant	N/A
3.8-4 Development under the Proposed Plan could result in a project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (the "Cortese List") and, as a result, create a significant hazard to the public or the environment.	None Required	Less than significant	N/A
3.8-5 Development under the Proposed Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.8-6 Future development allowed under the Proposed Plan would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	None Required	Less than Significant	N/A
3.8-7 Development under the Proposed Plan would not result in a safety hazard for people residing or working within an airport land use compatibility plan area or, where such a plan has not been adopted, within two miles of a public airport or public use airport or in close proximity to a private air strip.	None Required	No impact	N/A
3.9 Hydrology and Water Quality			
3.9-1 Development under the Proposed Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	None Required	Less than significant	N/A
3.9-2 Development under the Proposed Plan would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.9-3 Development under the Proposed Plan would not substantially alter the existing drainage pattern of the Planning Area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site.	None Required	Less than significant	N/A
3.9-4 Development under the Proposed Plan would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	None Required	Less than significant	N/A
3.9-5 Development under the Proposed Plan would not substantially degrade water quality.	None Required	Less than significant	N/A
3.9-6 Development under the Proposed Plan would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	**HYDRO-1:** Any proposed development or redevelopment on land designated as regulatory floodway on current FEMA maps shall, prior to issuance of a construction permit, obtain and submit to the City a Letter of Map Revision (LOMR) from FEMA, demonstrating that a hydrologic and hydraulic analysis showed that grading modifications were performed such that the proposed	Less than significant with Mitigation	Less than significant with Mitigation

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	development would no longer be within the floodway. These modifications shall be completed without raising the base flood level or impacting other properties.		
3.9-7 Development under the Proposed Plan would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.	None Required	Less than significant	N/A
3.9-8 Development under the Proposed Plan would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	None Required	Less than significant	N/A
3.9-9 Development under the Proposed Plan would not result in inundation by seiche, tsunami, or mudflow.	None Required	Less than significant	N/A
3.10 Land Use, Population, and Housing			
3.10-1 Implementation of the Proposed Plan would not physically divide an established community.	None Required	No Impact	N/A
3.10-2 Implementation of the Proposed Plan would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Plan (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the	None Required	No Impact	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
purpose of avoiding or mitigating an environmental effect.			
3.10-3 Implementation of the Proposed Plan would not conflict with any applicable habitat conservation plan or natural community conservation plan	None Required	No Impact	N/A
3.10-4 Implementation of the Proposed Plan would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	None Required	Less than significant	N/A
3.10-5 Implementation of the Proposed Plan would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	None Required	Less than significant	N/A
3.11 Noise			
3.11-1 Implementation of the Proposed Plan would not expose persons to or generate noise levels in excess of the noise standards established in the Proposed Plan Noise Element or applicable standards of other agencies.	None Required	Less than Significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.11-2 Implementation of the Proposed Plan would not expose people to or generate excessive groundborne vibration or groundborne noise levels.	**NO-1:** Where vibration impacts have the potential to cause structural damage or distinctly perceptible human response (reference Tables 3.11-12 to 3.11-14, or more recent sources), require a vibration study, prepared by a qualified vibration consultant. The study should include a site-specific engineering assessment of potential vibration impacts to structures and sensitive receptors from construction activities and specify a mitigation plan to minimize the impacts using all reasonable and feasible means available. The mitigation plan should include a procedure for establishing threshold and limiting vibration values for potentially affected structures, based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations and a commitment to develop a vibration monitoring plan during the engineering phase and to implement a compliance monitoring program during construction.	Less than significant with Mitigation	Less than significant with Mitigation
3.11-3 The development of the Proposed Plan would result in a substantial permanent increase in ambient noise levels above levels existing without the Proposed Plan.	None Required	Significant and unavoidable	Significant and unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.11-4 The development of the Proposed Plan would not result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the Proposed Plan.	None Required	Less than significant	N/A
3.11-5 The Proposed Plan would not expose people residing or working in the Planning Area to excessive noise levels related to its location within two miles of a public airport or public use airport.	None Required	No Impact	N/A
3.11-6 The Proposed Plan would not expose people residing or working in the Planning Area to excessive noise levels related to its location in the vicinity of a private airstrip.	None Required	No Impact	N/A
3.12 Public Services and Recreation			
3.12-1 Implementation of the Proposed Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire	None Required	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
protection, police protection, schools, parks, or other public facilities.			
3.12-2 Implementation of the Proposed Plan would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	None Required	Less than significant	N/A
3.12-3 Implementation of the Proposed Plan would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	None Required	Less than significant	N/A
3.13 Transportation and Traffic			
3.13-1 Implementation of the Proposed Plan could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	The following specific mitigation measures have been developed to alleviate the significant impacts noted above. With the exception of the Silverado Trail/Pope Street intersection, these mitigation measures would require approval by Caltrans and/or further action by the City Council prior to implementation of the mitigation measure. **TR-1:** Main Street/Pratt Avenue: Install a traffic signal at the intersection. **TR-2:** Main Street/Elmhurst Avenue: Restripe the intersection to include the following:	Significant and unavoidable	Significant and unavoidable

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	• Northbound approach: 1 left turn lane, 1 though lane • Southbound approach: 1 two-way left turn lane, 1 through-right turn shared lane • Eastbound approach: 1 left turn lane, 1 right turn lane **TR-3:** Main Street/Pope Street-Mitchell Drive: Construct one or more of the planned roadway extensions noted in General Plan Figure 5.2. Note that, per the General Plan, additional study of the connection(s) would be required, and the City Council would need to approve the connection at that time. Candidate extensions that may directly reduce the impacts at Main Street/Pope Street-Mitchell Drive include: • Connection 2A: College Avenue extension to Mills Lane (may require realignment of Mills Lane to meet Main Street/Grayson Avenue intersection) • Connection 3: Oak Avenue extension from Mitchell Drive to Grayson Avenue • Connection 2B, Connection 2C, Connection 5B, or a combination of Connections 1, 4 and 5A may provide		

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
	congestion relief to Main Street/Pope Street-Mitchell Drive, but these improvements have additional considerations related to neighborhood traffic volumes and costs related to crossings of the Napa River. **TR-4:** Main Street/Sulphur Springs Avenue: Install a traffic signal at the intersection. **TR-5:** Silverado Trail/Pope Street: Install a traffic signal at the intersection. The nearby intersection of Silverado Trail/Howell Mountain Road may require signalization as well because the two intersections are closely spaced. **TR-6:** Main Street/Grayson Avenue and Main Street/Mills Lane: Realign Mills Lane to form a four approach to the existing Main Street/Grayson Avenue intersection.		
3.13-2 Implementation of the Proposed Plan could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	None required.	Less than significant	N/A
3.13-3 Implementation of the Proposed Plan would not result in a change in air traffic patterns,	None required.	Less than significant	N/A

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Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
including either an increase in traffic levels or a change in location that results in substantial safety risks.			
3.13-4 Implementation of the Proposed Plan would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	None required.	Less than significant	N/A
3.13-5 Implementation of the Proposed Plan would not result in inadequate emergency access.	None required.	Less than significant	N/A
3.13-6 Implementation of the Proposed Plan would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	None required.	Less than significant	N/A
3.14 Utilities and Service Systems			
3.14-1 Potential development that could be allowed under the Proposed Plan would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board.	None required.	Less than Significant	N/A
3.14-2 Potential development that could be allowed under the Proposed Plan could require construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	Less than significant	N/A

Table ES-4: Summary of Impacts and Mitigation Measures			
Impact	*Mitigation Measures*	*Significance before Mitigation*	*Significance after Mitigation*
3.14-3 Potential development that could be allowed under the Proposed Plan would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	Less than significant	N/A
3.14-4 Potential development that could be allowed under the Proposed Plan would have sufficient water supplies available to serve the project from existing entitlements and resources and would not require new or expanded entitlements.	None required.	Less than significant	N/A
3.14-5 Potential development that could be allowed under the Proposed Plan would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the projected demand in addition to the provider's existing commitments.	None required.	Less than significant	N/A
3.14-6 Potential development that could be allowed under the Proposed Plan would be served by a landfill with sufficient capacity to accommodate the project's solid waste disposal needs.	None required.	Less than significant	N/A
3.14-7 Potential development that could be allowed under the Proposed Plan would comply with federal, state, and local statutes or regulations related to solid waste.	None required.	Less than significant	N/A

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1 Introduction

This Draft Environmental Impact Report (EIR) has been prepared on behalf of the City of St. Helena in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 *et seq*.). The EIR analyzes potential environmental impacts of the adoption and implementation of the proposed St. Helena General Plan Update 2040, referred to as the "Proposed Plan." This chapter outlines the purpose and overall approach to the preparation of the EIR. The City of St. Helena is the lead agency responsible for ensuring that the Proposed Plan complies with CEQA. "Lead agency" is defined by Section 21067 of CEQA as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment."

1.1 Purpose of the EIR

Pursuant to the provisions of CEQA and related case law, general plans and other programs must include analyses of the potential significant environmental impacts associated with implementation of their policies and proposals. The primary intent of CEQA is to ensure that public agency decision-makers document and consider the environmental implications of their actions in order to avoid or minimize environmental damage that could result from the implementation of a project wherever feasible, and to balance environmental, economic, and social objectives. The purpose of an EIR is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided (California Public Resources Code [PRC] Section 21002.1).

PURPOSE

This EIR serves the following purposes:

- To satisfy CEQA requirements for analysis of environmental impacts by including a complete and comprehensive programmatic evaluation of the physical impacts of adopting and implementing the Proposed Plan;
- To recommend a set of measures to mitigate any significant adverse impacts;
- To analyze a range of reasonable alternatives to the Proposed Plan;
- To inform decision-makers and the public of the potential environmental impacts of the Proposed Plan prior to taking action on the Proposed Plan, and to assist City officials in reviewing and adopting the proposed General Plan; and

- To provide a basis for the review of subsequent development projects and public improvements proposed within the Planning Area. Subsequent environmental documents may be tiered from the Final EIR.

The Proposed Plan consists of policies, diagrams, and standards to guide the future development of the City of St. Helena, as described in Chapter 2: Project Description. This EIR contains analysis of all potential environmental impacts expected to result from implementation of the various policies and programs identified as part of the Proposed Plan, including those that serve to avoid or minimize adverse environmental impacts. In accordance with CEQA requirements, this EIR also identifies and evaluates alternatives to the Proposed Plan, including the No Project Alternative, which represents the continued implementation of the current General Plan. An environmentally superior alternative is identified as part of the alternatives analysis.

This EIR represents the best effort, at a programmatic level, to evaluate the potential environmental impacts of the Proposed Plan given its 2040 planning horizon. It can be anticipated that conditions will change; however, the assumptions used are the best available at the time of preparation and reflect existing knowledge of patterns of development.

INTENDED USES OF THE EIR

The CEQA Guidelines (Section 15124(d)) require EIRs to identify the agencies that are expected to use the EIR in their decision-making, and the approvals for which the EIR will be used. This EIR will inform the City of St. Helena, in addition to other responsible agencies, persons, and the general public, of the potential environmental effects of the Proposed Plan and the identified alternatives. The City of St. Helena will use the EIR as part of its review and approval of the proposed General Plan. Other agencies expected to use the EIR include: Napa County, the Napa County Local Agency Formation Commission (LAFCO), and the Napa Valley Transit Authority (NVTA), as well as State agencies such as the State Water Resources Control Board and Caltrans, and any other responsible or trustee agencies.

1.2 Approach and Scope of the EIR

TYPE OF EIR

This EIR is a program EIR, defined in Section 15168 of the CEQA Guidelines as: "[An EIR addressing a] series of actions that can be characterized as one large project and are related either: (1) Geographically; (2) A[s] logical parts in the chain of contemplated actions; (3) In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental impacts which can be mitigated in similar ways."

Program EIRs can be used as the basic, general environmental assessment for an overall program of future projects, policies, and related implementation actions, such as the Proposed Plan, intended to be developed or implemented over a 20-year planning horizon. A program EIR has several advantages. First, it provides a basic reference document to avoid unnecessary repetition

of facts or analysis in subsequent project-specific assessments. Second, it allows the lead agency to look at the broad, regional impacts of a program of actions before its adoption and eliminates redundant or contradictory approaches to the consideration of regional and cumulative effects.

As a programmatic document, this EIR presents a citywide assessment of the potential impacts of the Proposed Plan. It does not separately evaluate subcomponents of the Proposed Plan nor does it assess project-specific impacts of potential future projects under the Proposed Plan, all of which are required to comply with CEQA and/or the National Environmental Policy Act (NEPA) as applicable.

As a program EIR, the preparation of this document does not relieve the sponsors of specific projects from the responsibility of complying with the requirements of CEQA (and/or NEPA for projects requiring federal funding or approvals). As noted, individual projects are required to prepare a more precise, project-level analysis to fulfill CEQA and/or NEPA requirements. The lead agency responsible for reviewing these projects shall determine the level of review needed, and the scope of that analysis will depend on the specifics of the particular project. These projects may, however, use the discussion of impacts in this EIR as a basis of their assessment of these regional, citywide, or cumulative impacts, provided that the projects are consistent with the General Plan and the data and assumptions used in this EIR remain current and valid.

PLANNING HORIZON

For analytic purposes in this EIR, the base year is 2018 unless otherwise noted, and the horizon year representing future conditions is 2040. In cases where current data is not available, the most recent known data is used to depict baseline conditions. The horizon year of 2040 represents the target year of the Proposed Plan when projects and programs are anticipated to be fully implemented. In reality, full implementation of the Proposed Plan may take more or less than 20 years.

ENVIRONMENTAL ISSUE AREAS

Information gathered about the environmental setting is used to define relevant planning issues, determine thresholds of significance, and evaluate potential impacts. Based on the initial analysis of environmental setting and baseline conditions, comments received during the EIR Scoping Period, the following issues are analyzed in this program EIR:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural, Historic, and Tribal Cultural Resources
- Energy, Greenhouse Gas Emissions, and Climate Change
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials

- Hydrology and Water Quality
- Land Use, Population, and Housing
- Noise
- Public Services and Recreation
- Public Utilities
- Transportation

ALTERNATIVES

CEQA requires the EIR to evaluate a reasonable range of alternatives to the Proposed Plan that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts. This EIR evaluates two alternatives, including the Transportation Network Enhancement Alternative and the No Project Alternative, which represents the continuation of the City's currently adopted General Plan.

1.3 Environmental Review Process

In accordance with CEQA Guidelines Section 15090, prior to adopting the Proposed Plan, the City must certify that the Draft and Final EIRs have been completed in compliance with CEQA and that the decision-making body of the lead agency considered the information contained in the Final EIR. This section describes the environmental review process undertaken for this EIR pursuant to CEQA.

NOTICE OF PREPARATION AND SCOPING

The Notice of Preparation (NOP) for the EIR on the Proposed Plan was submitted to the State Clearinghouse on April 2, 2018 and circulated among relevant State and local agencies, as well as to members of the public. The NOP provided a brief project description and requested comments and guidance on the scope and content of the EIR from responsible and trustee agencies, interested public agencies, organizations, and the general public. The City received comments during a 30-day review period, which ended May 1, 2018. Two comments were received, including a letter from Caltrans and a letter from a member of the public. The NOP and comments on the NOP received by the City are included as Appendix A of this EIR.

An EIR Scoping Meeting conducted by the Planning Commission was held on April 17, 2018 in the Vintage Hall Board Room to receive comments and suggestions on scope and content for the EIR and solicit input on potential impacts. A summary of comments received at the Scoping Meeting and during the Scoping Period is included as Appendix B of this EIR. Comments on the NOP, along with input received during public workshops and meetings over the course of the General Plan Update process, have helped to identify the major planning and environmental issues and concerns and establish the framework of this EIR.

TRIBAL CONSULTATION

Senate Bill (SB) 18, codified in California Government Code §65352.3, requires local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of protecting, and/or mitigating impacts to cultural places prior to the adoption or amendment of a city's general plan. Additionally, Assembly Bill (AB) 52 requires tribal cultural resources to be addressed under CEQA and established requirements for consultation with Native American tribes as part of the CEQA process, providing both federal and non-federally recognized tribes the right to formal consultation with project lead agencies (California Public Resources Code Section 21080.3.1).

In accordance with SB 18, the City contacted the NAHC in May 2018 to request a consultation list of tribes traditionally and culturally affiliated with the Planning Area. The City contacted the six listed tribes, per SB 18 and AB 52, providing information about the planning process and inviting them to initiate consultation if desired. The City received one response, from the Federated Indians of Graton Rancheria, with no comments on the project at that time. Correspondence related to tribal consultation is included as Appendix C of this EIR.

Pursuant to SB 18 and AB 52, the City contacted the California Native American Heritage Commission (NAHC) in February 2016 and May 2018 to request a search of its Sacred Lands File and to obtain a list of California Native American tribes whom the City would engage for the purposes of avoiding, protecting, and/or mitigating impacts on cultural resources. The NAHC provided the City with a list of five California Native American tribes to contact in accordance with SB 18 – the Cortina Band of Indians, Middletown Rancheria of Pomo Indians, two contacts from the Federated Indians of Graton Rancheria, and the Yocha Dehe Wintun Nation. The City contacted the six listed tribes in per SB 18 and AB 52.[1]

Of the six tribes contacted by the City, only one response, from the Federated Indians of Graton Rancheria, was received. The tribal contact did not identify any cultural resources in the Planning Area (see Appendix C for related materials).

DRAFT EIR REVIEW

Upon completion of the Draft EIR, the City will file a Notice of Completion (NOC) with the Governor's Office of Planning and Research (OPR) and provide a Notice of Availability to the public to begin the mandated 45-day public review period. The public review period for this Draft EIR will be 71 days and will begin on Tuesday, October 23, 2018 and end on Friday, January 2, 2019. The EIR and appendices are available for review at the City of St. Helena City Hall at 1480 Main Street, St. Helena, CA 94574 and online at http://www.ci.st-helena.ca.us/.

[1] The City contacted four of the six tribes in April 2018 based on the list obtained from NAHC in 2016. Upon receiving an updated list from the NAHC in 2018, one new contact and one changed contact were subsequently contacted.

Please submit comments on the Draft EIR in writing or via email to:

Noah Housh, Director
City of St. Helena Planning and Community Improvement Department
1480 Main Street
St. Helena, CA 94574
NHoush@cityofsthelena.org

FINAL EIR AND CERTIFICATION

After the close of the public review period, City staff and CEQA consultants will review the comments, respond to the comments received, and revise the EIR as necessary. Responses to comments and revisions to the Draft EIR will be provided as the Final EIR. The City Council will then consider certification of the Final EIR. Subsequent to certification of the Final EIR, the City Council may approve the Proposed Plan. A decision to approve the Proposed Plan would be accompanied by written findings in accordance with CEQA Guidelines Section 15091 and Section 15093. If the City Council approves the Project, a Notice of Determination will be filed with the State Office of Planning and Research and the Clerk of Napa County.

RELEVANT PLANS AND ENVIRONMENTAL STUDIES

Other plans and studies relevant to the Proposed Plan include the following:

- Plan Bay Area 2040 (2017)
- Highway 29 Specific Plan (2005)
- Napa Countywide Bicycle Plan (2017)
- Napa Countywide Pedestrian Plan (2015)
- Vision 2040 Napa Countywide Transportation Plan (2018)
- Napa County General Plan (2008)

ORGANIZATION OF THE EIR

This Draft EIR is organized into the following chapters, plus appendices.

ES. **Executive Summary.** Summarizes the EIR by providing an overview of the Proposed Plan, the potentially significant environmental impacts that could result from the Proposed Plan, the mitigation measures identified to reduce or avoid these impacts, alternatives to the Proposed Plan, and identification of the environmentally superior alternative.

1. **Introduction.** Introduces the purpose for the EIR, explains the EIR process and intended uses of the EIR, and describes the overall organization of this EIR.
2. **Project Description.** Describes in detail the proposed General Plan Update, including the location and planning boundaries, purpose and objectives, buildout, and implementation of the Proposed Plan.

3. **Environmental Settings and Impacts.** Analyzes the environmental impacts of the Proposed Plan. Impacts are organized by major topic. Each topic area includes a description of the environmental setting, significance criteria, methodology and potential impacts.

4. **Analysis of Alternatives.** Presents a reasonable range of alternatives to the Proposed Plan, provides discussion of environmental impacts associated with each alternative, compares the relative impacts of each alternative to those of the Proposed Plan and other alternatives, discusses the relationship of each alternative to the Proposed Plan's objectives, and identifies the environmentally superior alternative.

5. **CEQA Required Conclusions.** Summarizes significant environmental impacts, including growth-inducing, cumulative, and significant and unavoidable impacts; significant irreversible environmental change; and impacts found not to be significant.

6. **References.** Lists documents and other information sources used in the preparation of the EIR.

7. **List of Preparers.** Identifies the persons and organizations that contributed to the preparation of the EIR.

8. **Appendices**. Includes the NOP and compilation of agency and public comments received on the NOP, as well as technical documentation of data used for environmental analysis in this EIR.

   - **Appendix A:** Notice of Preparation and Comment Letters
   - **Appendix B:** Summary of Scoping Comments
   - **Appendix C:** Tribal Correspondence
   - **Appendix D:** Buildout Methodology
   - **Appendix E:** Air Quality Modeling Results
   - **Appendix F:** List of Historic Resources
   - **Appendix G:** GHG Inventory Methodology
   - **Appendix H:** City of St. Helena General Plan 2030: Background Transportation Report (2009)
   - **Appendix I:** Transportation Modeling Results

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2 Project Description

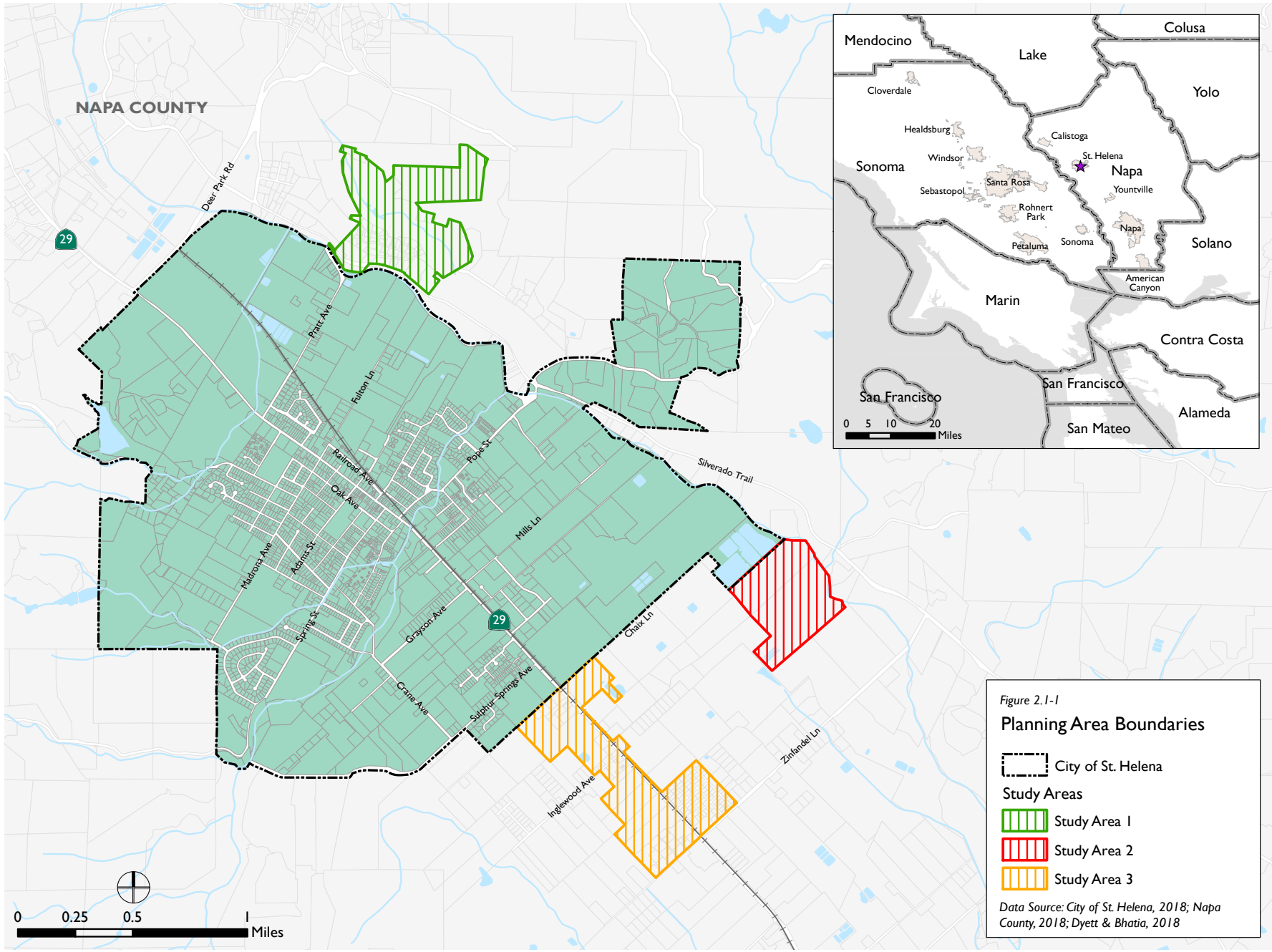
This EIR evaluates the potential environmental impacts of the proposed St. Helena 2040 General Plan Update (General Plan Update), referred to as the "Proposed Plan." The Proposed Plan would be used to guide future land use decisions in the City of St. Helena. It would provide a long-term vision for the city and, through its policies and implementing actions, would indicate how that vision may be achieved over the life of the document. The Proposed Plan would be the primary policy document guiding growth and development within the City of St. Helena through the planning horizon year of 2040. California Government Code Section 65300 et seq. mandates that all counties and incorporated cities prepare a general plan that establishes policies and standards for future development, housing affordability, and resource protection. State law encourages cities to keep general plans current through regular updates. The Proposed Plan is intended to make significant revisions to the adopted 1993 General Plan, with an emphasis on new policies related to land use, economic sustainability, water conservation, circulation, preservation of agricultural land, climate change, and multi-modal transportation options.

This chapter introduces the purpose and objectives of the Proposed Plan and summarizes specific information to describe the Proposed Plan and complete the EIR analysis. This includes a description of the existing regional and local project setting, an outline of the projected population and employment growth rates and development patterns through the planning horizon year, the Proposed Plan land use diagram, key data tables, and a description of the Proposed Plan's policy direction. This project description provides the basis for the environmental analysis in Chapter 3 and Alternatives analysis in Chapter 4. Additional details are provided in the Proposed Plan itself, which can be reviewed on the City of St. Helena website (www.ci.st-helena.ca.us).

2.1 Regional Location and Project Boundaries

REGIONAL CONTEXT

St. Helena sits at the heart of the upper Napa Valley in Napa County, located approximately 65 miles north of San Francisco and 77 miles west of Sacramento. State Route (SR) 29 connects St. Helena to other communities in the Valley, including Calistoga to the north and Yountville, Napa, and American Canyon to the south. The regional context is shown in Figure 2.1-1.


NAPA COUNTY
Deer Park Rd
Pratt Ave
Fulton Ln
Railroad Ave
Oak Ave
Pope St
Mills Ln
Silverado Trail
Madrona Ave
Adams St
Spring St
Grayson Ave
Crane Ave
Sulphur Springs Ave
Chiles Ln
Inglewood Ave
Zinfandel Ln
29
0 0.25 0.5 1 Miles
Mendocino
Lake
Colusa
Yolo
Cloverdale
Healdsburg
Calistoga
St. Helena
Windsor
Sonoma
Napa
Santa Rosa
Sebastopol
Yountville
Rohnert Park
Petaluma
Napa
Solano
American Canyon
Marin
Contra Costa
San Francisco
San Francisco
Alameda
San Mateo
0 5 10 20 Miles
Figure 2.1-1
Planning Area Boundaries
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

PLANNING AREA

The Planning Area is the land area addressed by the General Plan. Shown in Figure 2.1-1, the Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas. Although St. Helena does not have jurisdiction in areas outside of its city limits, the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities, to the three adjacent study areas. As such, what happens in those areas bears a relation to the City's planning and must be considered in the General Plan, per California Government Code Section 65300.

The three study areas include:

- **Study Area 1.** This 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and City-owned utility infrastructure, including water tanks. The City provides water service to Meadowood and some of the residential development in the area.
- **Study Area 2.** Located south of Chalk Lane immediately adjacent to the southeastern City limit, this area of approximately 100 acres comprises the spray fields currently used to dispose of treated effluent from the City's Wastewater Treatment Plant.
- **Study Area 3.** Comprising parcels with existing commercial and residential development fronting SR 29, this 185-acre area extends south from Chalk Lane to Zinfandel Lane. The City currently provides water utility service to many properties in this area, with the remaining structures relying on wells and individual septic systems of various ages and capacities.

The intent of including the three study areas within the Planning Area of the General Plan update is to document sensitive environmental resources and regulatory or capacity constraints associated with those areas.

2.2 Purpose and Objectives of the Proposed Plan

CEQA Guidelines (§15124) require a description of the Proposed Plan purpose and objectives.

PURPOSE

California Government Code Section 65300 requires each city and county in California to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which…bears relation to its planning." The St. Helena General Plan can be considered the city's development constitution, containing both a statement of the community's vision of its long-term development as well as the policies to support that vision by guiding the physical growth of the city. The Proposed Plan contains policies to guide decision-making related to development, housing, transportation, environmental quality, public services, parks, and open spaces. The Proposed Plan is a document to be adopted by the City Council that serves the following purposes:

- Establish a long-range vision that reflects the aspirations of the community and outlines steps to achieve this vision;
- Establish long-range development policies that will guide City departments, Planning Commission, and City Council decision-making;
- Provide a basis for judging whether specific development proposals and public projects are in harmony with plan policies;
- Plan in a manner that meets future land needs based on the projected population and job growth;
- Allow City departments, other public agencies, and private developers to design projects that will enhance the character of the community, preserve environmental resources, and minimize hazards; and
- Provide the basis for establishing and setting priorities for detailed plans and implementing programs, such as the zoning ordinance, subdivision regulations, specific and master plans, and the Capital Improvement Program.

The Proposed Plan would replace the existing 1993 General Plan in all elements, excluding the Housing Element, which was adopted and certified by the California Department of Housing and Community Development (HCD) in May 2015. The existing 1993 General Plan has a horizon year of 2010. The Proposed Plan would establish a planning and policy framework that would extend to horizon year 2040.

OBJECTIVES

The proposed Plan provides the basis for the City's land use and development policy and represents the basic community values, ideals, and aspirations that will govern development and conservation through the planning horizon year of 2040. Specific objectives established for the project include the following:

1. Encourage infill development in previously developed areas of the city to preserve agricultural and open space lands outside the urban limit line and foster a compact development pattern;
2. Focus future development so that it is contiguous to existing developed areas and supports efficient delivery of public services and infrastructure;
3. Preserve St. Helena's small-town character;
4. Protect local historic resources and preserve St. Helena's agricultural heritage;
5. Reduce traffic congestion by providing alternative transportation choices, enhancing regional public transit connections, and achieving an appropriate jobs-to-housing balance to reduce commuter trips;
6. Protect and enhance the natural resources—including the riparian corridors, woodlands, flora, and fauna—that contribute to St. Helena's healthy environment, scenic beauty, and quality of life;

7. Strengthen St. Helena's role as a rural commercial and business center serving the daily needs of local residents in town and in the surrounding unincorporated communities;
8. Cultivate a healthy and diverse local economy;
9. Promote sustainable, low-impact tourism that contributes to the local economy while maintaining St. Helena's character;
10. Provide a high-quality network of parks, open spaces, and trails that enhances quality of life and connectivity in the community; and
11. Foster a vibrant arts community that contributes to the local economy and enriches the cultural life of the community.

2.3 Proposed General Plan Update

PLANNING HORIZON

The planning horizon is the period of time for which the Proposed Plan looks ahead in order to comprehensively plan for the city's next major phase of growth, change, and investment. The Proposed Plan establishes a horizon year of 2040. The horizon year does not signify an end point for the policies in the document; rather, it provides the context for long-term decision-making. As planning is a continuous and dynamic process, the Proposed Plan is intended to be reviewed regularly and amended as necessary as new information becomes available and the community's priorities shift.

PLANNING PROCESS

Project History

The City's current General Plan was adopted in 1993. In 2007, the City began the process of comprehensively updating the General Plan to more accurately reflect current conditions and the community's goals. From 2007 to 2010, the City worked to develop a complete draft update of the General Plan with the assistance of a General Plan Update Steering Committee (GPUSC) composed of St. Helena residents, and a team of consultants.

The initial development of the Proposed Plan involved four phases. The first phase took place between April 2007 and February 2008 and involved both a thorough analysis of existing conditions and a community visioning process. The existing conditions analysis resulted in a series of working papers that described current conditions and key policy issues for the topics of community vision, community character, circulation, economics, infrastructure, climate change, the natural environment, sustainability, and regional context. The community visioning process consisted of a telephone survey, workshops, an open house, and a public forum, dedicated to exploring the major issues and opportunities faced by St. Helena, and the desires of its community moving forward. This process resulted in a clear articulation of the community's desire to build a sustainable future, reflected in the community vision included in the Proposed Plan.

The second phase started in October 2008 and focused on policy and physical framework development. During this phase, the City worked with the GPUSC and the community to develop the Proposed Plan goals, policies and implementing actions. The City launched its General Plan Update website and began publication of regular e-newsletters to keep community members informed of the process. The GPUSC met regularly during this stage, and hosted the first community workshop, a "land use and design charrette" aimed to explore key land use issues and opportunities. The City worked to refine existing land use maps, review background policy and technical documents, and analyze the existing General Plan Physical Framework and Land Use Element. The outcomes of this effort included identification of potential change areas (discussed below) in the city, identification of the likely impacts of this change, and the development of potential land use changes in the city.

In April 2009, the City began the third phase, developing the draft General Plan Update document. A series of eight GPUSC meetings were held to review drafts of the updated General Plan elements. Two community workshops were held to discuss community design and circulation in fall 2009. Additional community meetings were held to review the public review draft of the General Plan Update in early 2010.

Beginning in the summer of 2010, the fourth phase of plan development focused on preparing draft General Plan documents for review by the Planning Commission and the City Council. As part of the planning process, the City prepared a Draft EIR to identify potential impacts of implementing the then-proposed General Plan Update 2030. The Draft EIR was released in August 2010, and a Final EIR including response to comments received was prepared in October 2010. Subsequently, the Planning Commission reviewed the draft General Plan and Final EIR in October of 2010, and recommended approval to the City Council; however, during City Council review, concerns were raised in relation to water supply and the Council decided to postpone action on the draft General Plan in order to address these concerns. A "Safe Yield Committee" was formed to develop a Water Management Program, which was adopted by the City Council in November 2012. Since that time the City Council and Planning Commission continued to review the draft General Plan in an ongoing process involving a series of public hearings and study sessions and made subsequent recommendations for additional revisions to the draft document.

Changes Since 2010

Following incorporation of the Planning Commission's refinements to the 2010 draft described above, the General Plan Update was substantially complete, although some additional changes from that version were necessary to ensure consistency and compliance with State law. In January 2018, the City began the effort to make these additional refinements and finalize the Proposed Plan:

- An updated horizon year of 2040;
- Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;
- Text revisions associated with new State requirements; and
- Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in

order to inform decision-makers and community members about associated issues and opportunities.

PROPOSED PLAN CONTENTS

The Proposed Plan is organized by topic in 11 elements. The Proposed Plan elements differ from the nine 1993 General Plan elements in the following ways: it introduces three new elements—Economic Sustainability, Climate Change, and Arts, Culture, and Entertainment—and incorporates the 1993 Tourism Management Element into the new Economic Sustainability Element. Each element contains related goals, policies, and implementing actions, as well as supporting background information. The Housing Element, while a required element of the City's General Plan, is not included in the Proposed Plan being considered in this EIR. Per the requirements of the California Department of Housing and Community Development, St. Helena's Housing Element was last updated and adopted in May 2015 (covering the period from 2015-2023) and underwent environmental review at that time.

The elements and goals of the Proposed Plan are summarized as follows:

- **Land Use and Growth Management.** This element presents a framework for decisions about allowable land use and desirable development patterns, aiming to manage growth effectively while encouraging innovative approaches, quality design, and infill strategies. Goals for this element include:
  - Managing growth and maintaining community character; and
  - Promoting high-quality and sustainable development.
- **Economic Sustainability.** This element recognizes the important role that economic sustainability plays in developing a sustainable economy that is responsive to short- and long-term community concerns and objectives. Goals for this element include:
  - Meeting residents' needs for housing, employment, goods, and services;
  - Creating and implement an Economic Sustainability Strategy;
  - Balancing the benefits and effects of visitors; and
  - Generating revenue.
- **Public Facilities and Services.** This element sets forth policy guidance for the provision of services, amenities, and infrastructure. The focus is on policies related to water, wastewater, storm drainage and flooding, solid waste, schools and libraries, fire, and police. Goals for this element include:
  - Ensuring high-quality public services and facilities; and
  - Promoting sustainable standards and practices.
- **Circulation.** This element establishes the policies needed to foster a comprehensive and multi-modal transportation network. The element addresses the principal components of the vehicle circulation system, as well as issues relating to parking, transit, and pedestrian and bicycle routes in order to achieve the goal of meeting current and future transportation needs with a balanced, multi-modal transportation system.

- **Historic Resources.** This element presents a framework for governing future decisions about rehabilitating, retrofitting, and adaptively reusing the City's historic buildings. Goals for this element include:
  - Maintaining St. Helena's sense of place and visual character;
  - Preserving and protecting St. Helena's historic resources; and
  - Celebrating St. Helena's distinct history and heritage.
- **Community Design.** This element presents a policy framework that corresponds directly with other General Plan elements in determining the form, quality, and character of St. Helena's built environment. Goals for this element include:
  - Respecting St. Helena's historic character and unique sense of place;
  - Promoting a high-quality and sustainable built environment and public realm;
  - Encouraging community design throughout the city that helps to build community, encourage human interaction, and support non-automobile transportation;
  - Strengthening the city's neighborhoods so that they retain desirable characteristics, while allowing for smart change and evolution.
- **Open Space and Conservation.** This element guides future decisions about sustaining a healthy network of open spaces and protecting natural resources for future generations. Goals for this element include:
  - Preserving, enhancing, and restoring natural resources;
  - Ensuring stewardship of water resources; and
  - Expanding sustainable agricultural practices.
- **Public Health, Safety, and Noise.** This element presents a framework for minimizing risks posed by environmental and human-caused hazards that may impact St. Helena's health and welfare. This element aims to ensure that residents, workers and visitors are protected from negative exposure to flooding, fires, hazardous materials, air pollution, and geologic and seismic hazards. Goals for this element include:
  - Maintaining high levels of health and safety; and
  - Effectively coordinating responses to emergencies and natural disasters.
- **Climate Change.** This element is the City's policy framework for responding to and planning for climate change, addressing the City's energy conservation concerns, renewable energy production and use, and transportation-related concerns. Goals for this element include:
  - Increasing citywide transportation-related energy efficiency;
  - Reducing energy demand through improved building and design;
  - Reducing consumption and diverting waste;
  - Ensuring the sustainable management of agriculture, natural resources, and urban forests;
  - Increasing community engagement and advocacy; and

  - Improving the efficiency of local government operations.
- **Parks and Recreation.** This element presents a framework for developing and maintaining a comprehensive system of quality parks, pedestrian and bicycle trails, and recreational facilities and programs. Goals for this element include:
  - Providing high-quality parks and recreational services; and
  - Developing a system of interconnected bicycle and pedestrian trails.
- **Arts, Culture, and Entertainment.** This element aims to preserve and protect St. Helena's unique identity, heritage, and cultural resources; celebrate its vibrant community; and expand opportunities for arts enrichment. Goals for this element include:
  - Celebrating arts, culture, and entertainment;
  - Strengthening and expanding arts, culture, and entertainment; and
  - Honoring culture and heritage.

PROPOSED LAND USE STRATEGY

The Proposed Plan's land use strategy, as described in the proposed Land Use and Growth Management Element, reflects the following principles for directing future development:

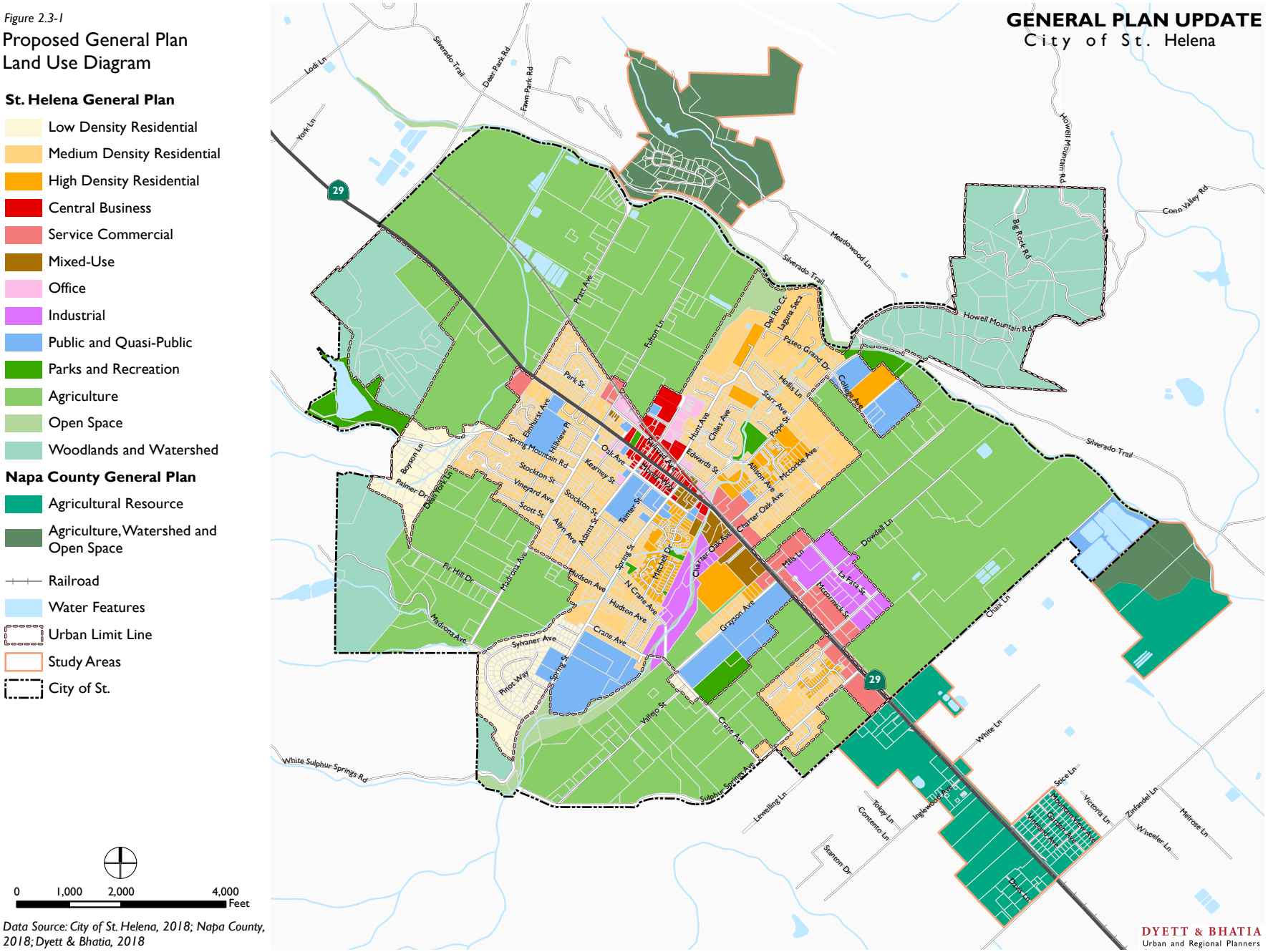
- Protect agricultural lands located outside of the Urban Limit Line (ULL);
- Preserve agriculture, green, and open space within the ULL to ensure that the city maintains a rural and small-town character with sufficient "fingers of green;"
- Focus new residential and commercial growth inward at appropriate infill sites; and
- Avoid "big box" development patterns and styles for commercial, industrial, and residential growth.

Land Use Diagram

The Land Use Diagram for the Proposed Plan is shown in Figure 2.3-1: Proposed General Plan Land Use Diagram. The Land Use Diagram designates the proposed general location, distribution, and extent of land uses. The diagram is to be used and interpreted only in conjunction with the text and other figures contained in the Proposed Plan. Upon adoption of the Proposed Plan, the City's Zoning Ordinance would be updated as necessary for consistency with the Land Use Diagram, and therefore would regulate development in a manner consistent with the updated General Plan. The Proposed Plan does not designate uses outside of St. Helena city limits.

Figure 2.3-1

Proposed General Plan Land Use Diagram



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Density and Intensity Standards

Density and intensity standards regulate how much development is permitted on a site. For residential uses, the density standards are expressed as the number of housing units per gross acre (dwelling units/acre, or DU/A) and typical lot size. For non-residential uses, development intensity is controlled by a measure known as Floor Area Ratio (FAR), which refers to the ratio between a building's total floor area and the total area of the site. Dwelling units per acre, typical lot size, and FAR are standard measures of site intensity that are used to evaluate development during the site planning and development review process. FAR applies to the entire development on a site, inclusive of any residential component, unless otherwise noted. Table 2.3-1: Density and Intensity Standards and Acreage Totals for Proposed Plan Land Use Designations, summarizes the density and intensity ranges for each land use designation, as well as the total acreage in each land use category as mapped on the Land Use Diagram.

Table 2.3-1: Summary of Proposed Land Use Designations

Proposed Plan Land Use Designation	*Residential Density (du/ac)*	*Non-Residential Density (Maximum FAR)*	*Acres*	*Percent of City Total*
Residential				
Low Density Residential	1.0 – 5.0	N/A	97	3%
Medium Density Residential	5.1 – 16.0	N/A	409	13%
High Density Residential	16.1 – 28.0	N/A	83	3%
Non-Residential				
Central Business	N/A	2.0	28	1%
Service Commercial	N/A	0.5	61	2%
Mixed Use	Up to 20.0	1.0	19	1%
Business and Professional Office	N/A	0.5	15	0%
Industrial	N/A	0.5	60	2%
Community and Natural Resource Areas				
Agriculture	N/A	N/A	1,451	46%
Open Space	N/A	N/A	72	2%
Parks and Recreation	N/A	N/A	57	2%
Public and Quasi-Public	N/A	0.5	156	5%
Woodlands and Watershed	N/A	N/A	451	14%
Subtotal	**N/A**	**N/A**	**2,959**	**94%**
Streets/ROW/Transportation	N/A	N/A	189	6%
Total	**N/A**	**N/A**	**3,149**	**100%**

Sources: City of St. Helena, 2018; Dyett & Bhatia, 2018

Land Use Designations

The following land use descriptions apply to the land use designations shown on the Land Use Diagram. The designations are meant to be broad enough to give the City flexibility in implementing the Proposed Plan; however, they are also meant to be clear enough to provide sufficient direction regarding the expected type and location of land uses planned in the city, as well as describe the relative similarities and differences between uses. The City's Zoning Ordinance contains more detailed provisions and standards. More than one zoning district may be consistent with a single General Plan land use designation.

The Proposed Plan introduces a new Mixed Use land use designation and revises the allowable densities for two of the residential designations. The Mixed Use designation provides for medium density residential mixed with retail, office, restaurant, or other local-serving uses; it allows up to 20 dwelling units per acre and a maximum floor-area ratio (FAR) of 1.0. The Proposed Plan would revise the Medium Density Residential and High Density Residential land use designations to allow for higher maximum densities. The Medium Density Residential density range would change from 5.1 to 12.0 units per acre under the 1993 General Plan to 5.1 to 16.0 units per acre under the Draft General Plan. The High Density Residential density range would change from 12.1 to 20.0 units per acre to 16.1 to 28.0 units per acre. The City's Zoning Ordinance already allows for 5.1 to 16.0 units per acre in the Medium Density Residential district and 12.1 to 20.0 units per acre in the High Density Residential district; these revisions would allow the General Plan to match existing zoning regulations.

Residential

- **Low Density Residential (LDR).** The LDR land use designation includes single-family detached homes, secondary residential units, limited agricultural uses, and similar and compatible uses. This category permits residential densities between 1.0 and 5.0 dwelling units per acre. The LDR designation applies to limited areas of the city with large, residentially-subdivided parcels, particularly those near the city's perimeter.
- **Medium Density Residential (MDR).** The MDR land use designation includes single-family attached and detached homes, and compatible uses. This category permits residential densities between 5.1 and 16.0 dwelling units per acre. It is intended to maintain a development pattern in higher density areas that is consistent with historic development patterns.
- **High Density Residential (HDR).** The HDR land use designation currently includes single-family and multi-family residential housing, apartments, and group quarters. This category permits residential densities between 16.1 and 28.0 dwelling units per acre.

Non-Residential

- **Central Business (CB).** The CB land use designation includes retail and commercial uses that serve local residents and the surrounding area. Typical CB uses include offices, restaurants, specialty retail, and lodging, with particular emphasis on pedestrian-oriented retail and service uses on the ground floor level, and offices located on upper floors. Residential uses can be considered for upper floor areas but are subject to discretionary

use permit review and approval. The maximum allowable FAR in CB-designated areas is 2.0.

- **Service Commercial (SC).** The SC land use designation includes service and retail uses that have larger space needs than are available in the Central Business District. Potential SC uses include offices, restaurants, service stations, and lodging, with a maximum allowable FAR of 0.5.
- **Business and Professional Office (BPO).** The BPO classification allows for professional and administrative office uses, including medical, financial, and similar uses. Residential uses in this designation can be considered for upper floor areas, subject to discretionary review and approval. The maximum allowable FAR is 0.5. BPO areas are located throughout the City and provide a compatible, transitional use between commercial and residential areas.
- **Industrial (I).** The Industrial land use designation includes industrial parks, warehouses, light manufacturing, and auto- and farm-related uses. The maximum allowable FAR is 0.5. Designated I areas are located south of Mills Lane and west of SR-29 along Charter Oak Avenue.
- **Mixed Use (MU).** This is a new land use designation introduced in the Proposed Plan. The MU land use category allows medium- to high-density residential mixed with retail, office, restaurant or other commercial uses. The maximum allowable residential density in MU areas is 20 dwelling units per acre.

Community and Natural Resource Areas

- **Agriculture (AG).** The AG land use designation includes agricultural and winery uses with restricted single-family residential and public/quasi-public uses. This classification applies to large areas of the valley floor that surround the city's urban core. With the exception of hillside areas designated WW, all lands outside the Urban Limit Line are designated AG regardless of their size or actual use. Minimum parcel sizes for new parcels in AG areas range from 20 to 40 acres. However, wineries in AG land may utilize a small portion of on-site land for provision of affordable employee housing.
- **Open Space (OS).** The OS classification includes open spaces that are devoted to natural resource preservation and management, passive outdoor recreation, multi-use trails, public health and safety. All OS areas are associated with stream corridors that pass through or are adjacent to the city, including the Napa River, Sulphur Springs Creek, York Creek and Spring Creek.
- **Parks and Recreation (PR).** The PR land use designation includes public parks with recreation uses. It applies to all existing public parks and proposed park sites.
- **Public and Quasi-Public (PQP).** The PQP land use designation provides for government-owned facilities, public and private schools, and quasi-public uses such as churches, community/public serving endeavors, and cemeteries. The maximum FAR for the PQP district is 0.5. The PQP designation occurs throughout the City, and includes the St. Helena Public Library, all of the public schools, some of the private schools, all churches, cemeteries, and the wastewater treatment plant.

- **Woodlands and Watershed (WW).** The WW classification includes very low density residential that ensures the protection of wildlife, vegetation, open space and watershed resources. This designation applies to steep hillsides at the City's westernmost and easternmost boundaries, with the intent to accommodate low-density, estate type development in locations that are less suitable for agricultural use. The minimum allowable parcel size is five acres.

Growth Management

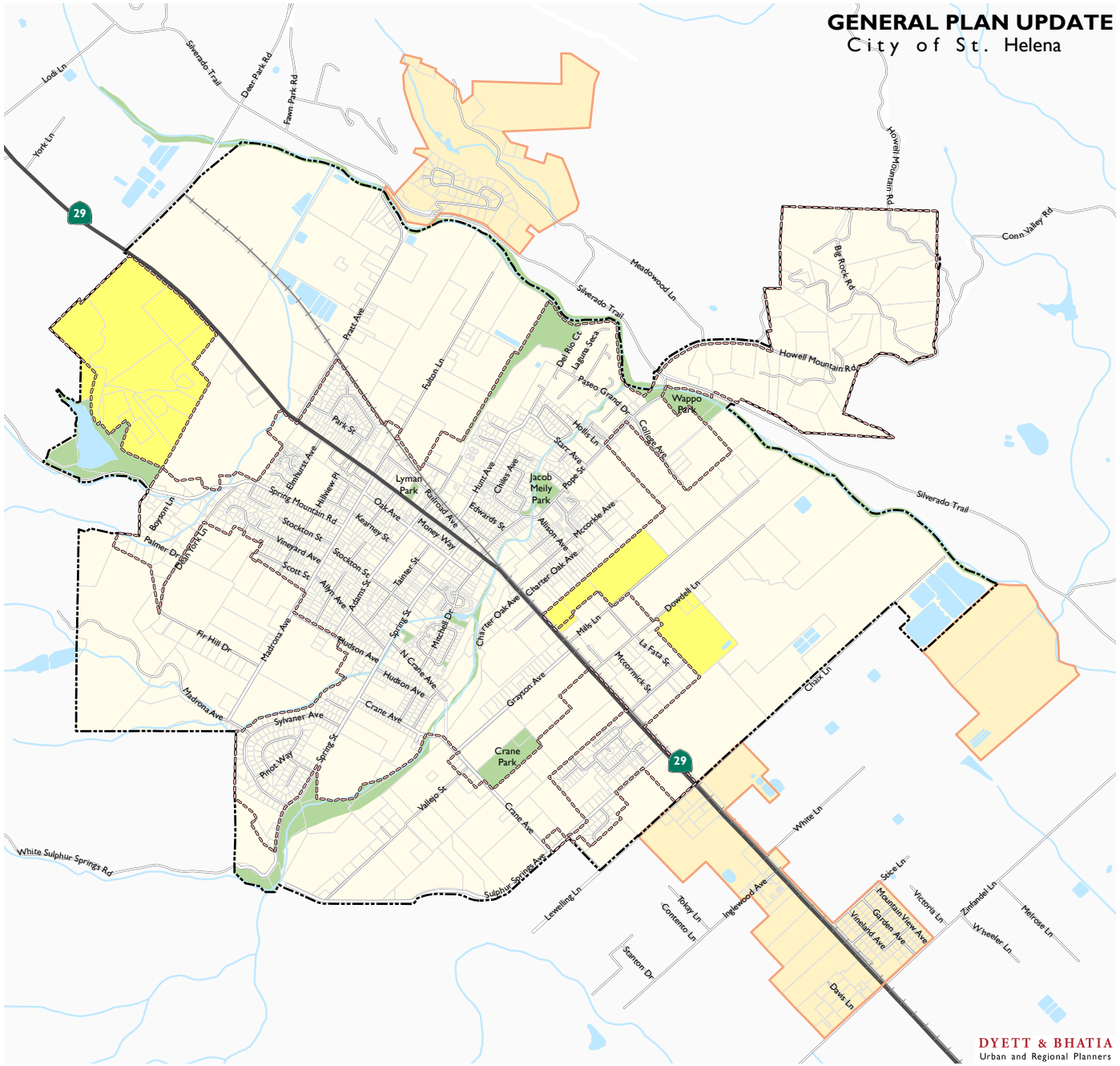
Urban Limit Line

The ULL is a parcel-specific boundary that marks the limit of where urban development is permitted within St. Helena. The intent of the ULL is to discourage urban sprawl by containing urban development within designated areas through the 2040 planning horizon. The Proposed Plan would adjust the ULL in two locations, at change areas 1 and 9 as described below. Figure 2.3-2 shows the proposed ULL. Land outside the Urban Limit Line but inside city limits is designated for agricultural uses. Given the long-term nature of the General Plan and the potential for unforeseen circumstances, the Proposed Plan anticipates the potential need to expand the urban area by identifying Urban Reserve Areas.

Figure 2.3-2

Urban Limit Line and Urban Reserve Areas

- Urban Reserve Areas
- Urban Limit Line
- Railroad
- Water Features
- Study Areas
- City of St. Helena



0 1,000 2,000 4,000 Feet

Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Urban Reserve Areas

Urban Reserve Areas can be considered for urban development after urban sections within the ULL are developed and if additional land is needed for urban uses. The Urban Reserve Areas, which are contiguous with the existing urban area, have been located to encourage balanced growth and to ensure that further urban development will maintain the compact development pattern desired by the community. The Proposed Plan does not alter the Urban Reserve Areas, which will maintain their currently adopted boundaries.

Urban Reserve Areas are all designated Agriculture and are expected to remain in agricultural use or undeveloped for the foreseeable future. Zoning in the Urban Reserve Areas would be the same as in other areas designated for agriculture. Zoning designation changes of any specific Urban Reserve Areas will be determined by the City Council at the time of incorporation within the ULL. Such changes would depend upon many factors, including: compatibility with existing or proposed surrounding uses; availability of services; demand for the proposed uses; the availability of other suitable areas; and the agricultural resource value of the land.

Locational suitability and timing will be considered when evaluating changes to the ULL and incorporation of Urban Reserve Areas into the ULL. Requests for expansion of the ULL will be considered in logical groupings that reflect the best long-term interests of the city, and will not be considered on a parcel-by-parcel basis, or in a manner that would permit non-contiguous development.

Residential Growth Management System

The Residential Growth Management System (GMS), established in the City's Growth Management Ordinance, limits the number of building permits available for residential growth each year. That limit, as of June 2018, is nine residential units per year, with exceptions given for affordable housing, second units, and in other circumstances as detailed in the ordinance. The City, as part of its periodic review of the GMS, considers the current adopted Regional Housing Needs Allocation (RHNA) number as determined by the Association of Bay Area Governments (ABAG) for a given cycle when establishing limits. The Proposed Plan would not alter the GMS.

Land Use Designation Changes

Designation changes on the Proposed Plan land use diagram are limited to 13 change areas located primarily in the center of the city. Figure 2.3-3 shows the 13 change areas, and Table 2.3-2 summarizes the proposed changes.

Table 2.3-2: Proposed Plan Change Areas

#	*Location*	*1993 Designation*	*Proposed Designation*	*Description of Change*
1	Adams Street and Library Lane	Central Business, Agriculture	Central Business	Designate the site, except the library as Central Business and modify the ULL to increase the developable area
2	Main Street, Spring Street, and Oak Avenue	Central Business	Mixed Use	Allow a mix of commercial, office, and residential development
3	Mitchell Drive and Oak Avenue – Northwest	Medium Density Residential	High Density Residential	Allow for higher density residential development within walking distance of Downtown
4	Mitchell Drive and Oak Avenue – Southeast	Office	Mixed Use	Allow a mix of commercial, office, and residential development
5	Main Street and Charter Oak Avenue	Service Commercial	Mixed Use	Allow mixed uses on eastern portion of the parcel
6	Main Street and Vidovich Avenue	Service Commercial	Mixed Use	The Vineland Station Hotel Project, a mixed-use project, has been approved for this location
7	Spring Street and St. James Drive	High Density Residential	Medium Density Residential	Designate as Medium Density Residential to accurately reflect existing densities
8	Grayson Avenue	Low Density Residential	Medium Density Residential	Designate as Medium Density Residential to allow more flexibility for density in this area
9	West end of Spring Street	Woodlands & Watershed	Low Density Residential	Modify the ULL and expand Low Density Residential area to better reflect the flat portion of the parcel
10	Church Street Parking Lot	Medium Density Residential	Mixed Use	Allow mixed use or allow the parcels to be developed as a parking lot
11	Flood Control Project Site	Medium Density Residential	Open Space	Redesignate for the flood control project
12	Railroad Avenue	Medium Density Residential	Mixed Use	Allow for mixed use
13	City Hall Site	Public & Quasi-Public, Office, Parks and Recreation	Central Business	Redesignate to Central Business to provide flexibility in future redevelopment of the site.

Figure 2.3-3

Land Use Change Areas

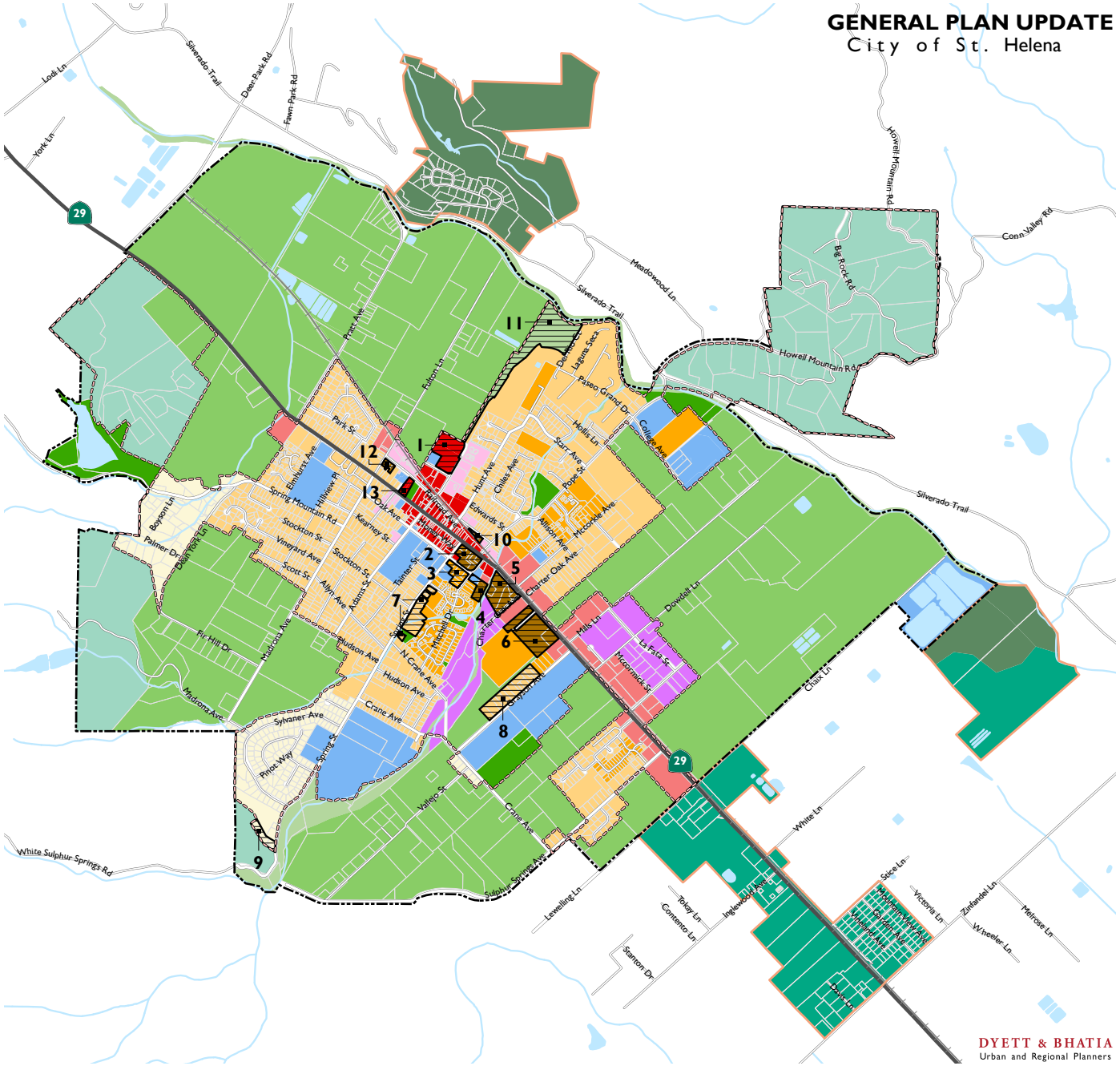
- Change Areas

St. Helena Land Use

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Service Commercial
- Mixed-Use
- Office
- Industrial
- Public and Quasi-Public
- Parks and Recreation
- Agriculture
- Open Space
- Woodlands and Watershed

Napa County Land Use

- Agricultural Resource
- Agriculture, Watershed and Open Space
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

BUILDOUT UNDER THE PROPOSED PLAN

Buildout refers to the estimated amount of new development and corresponding growth in population and employment that is likely to take place under the Proposed Plan through the horizon year of 2040. Buildout estimates should not be considered a prediction for growth, as the actual amount of development that will occur through 2040 is based on many factors outside of the City's control, including changes in regional real estate and labor markets and the decisions of individual property owners. Therefore, buildout estimates represent one potential set of outcomes rather than definitive figures. Additionally, the designation of a site for a specific land use in the Proposed Plan does not guarantee that a site will be developed or redeveloped at the assumed density during the planning period, as future development will rely primarily on each property owner's initiative. Outside of city limits and the SOI, lands remain under the development control of Napa County unless annexed.

For this EIR, buildout projections do not include the total amount of potential development that could be accommodated by the Proposed Plan. Rather, the buildout assumes that only a portion of the total potential development will occur by 2040, as described below.

Methodology

Buildout is calculated by summing existing development, development that is planned, permitted, or under construction (known as "pipeline development"), and an estimated amount of potential new development in the Planning Area. New development is generally expected to occur in the change areas or in areas identified by the City's 2015 Housing Element as "opportunity sites" (the housing sites most likely to develop given parcel size, environmental constraints, and current zoning), as well as on a portion of vacant properties in the city's neighborhoods. The methodology used to calculate buildout for this analysis is summarized below. A more detailed memorandum describing buildout methodology is included in Appendix D.

Existing Development

To establish existing population, housing units, and jobs in the Planning Area, the land use assumptions from the regional traffic model were adjusted with reference to data from the California Department of Finance (DOF), the Association of Bay Area Governments (ABAG), and the Napa County Assessor. To update the 2010 population and housing assumptions from the model, 2018 parcel data from the Napa County Assessor was used to determine the most up-to-date number of housing units in St. Helena as of May 2018. Citywide totals were compared with DOF estimates from 2018 to verify accuracy. The 2010 employment assumptions from the model were calibrated with reference to County Assessor data and the ABAG Projections 2013 dataset, which represents the best available data on citywide employment levels.

Pipeline Development

Pipeline projects include those projects that are currently under City review or that have been approved but not yet constructed. The list of pipeline projects considered in the projections was based on the list of Planning Projects on the City's website as of May 30, 2018 and a supplemental list provided by staff. Where possible, information on resulting dwelling units and jobs was

obtained through project application materials or information from City staff. Where project-specific information was not available, job numbers were estimated based on square feet per employee assumptions from the U.S. Green Building Council (USGBC) (USGBC, 2018).

Future Development

To estimate buildout for the planning horizon, assumptions were made about the density of development in each proposed land use designation, as well as the percentage of parcels that would actually develop depending on location and land use designation. Not all parcels identified as vacant or opportunity sites were assumed to fully develop by the planning horizon year of 2040 in order to reflect more realistic development patterns. Future development projected in the city considers potential development on the Housing Element housing inventory opportunity sites, in the draft General Plan Change Areas, and on vacant sites designated as residential in the Proposed Plan. Projections also consider the potential for accessory dwelling units (ADUs) assuming that the rate of two ADUs per year documented from 2011 to 2017 would continue.

For the study areas, which are located outside of the city, it was assumed that the Proposed Plan would not have an effect on development in the traffic analysis zones (TAZs) over the planning horizon, as no land uses or policies are proposed for areas outside of city limits; thus, development projections for the study areas relied on existing development controls and trends. Residential development in the study areas was projected based on Napa County's Growth Management System, which limits the number of new housing units permitted in the county per year to accommodate an annual population growth rate of not more than 1 percent. The projections assume enough single-family housing units to accommodate 1 percent of population growth annually through 2040, using an average household size of 2.69 from the 2010 Census for Napa County. For employment, the 2018 employment estimates for the study areas were compared to the 2010 model assumptions for the larger TAZs where the study areas were located, and the proportion of study area jobs to TAZ jobs was used to find the portion of the 2040 traffic model assumptions to be attributed to the study areas.

Residential Buildout

Table 2.3-3 describes potential residential development resulting from application of land uses shown on the Proposed Plan Land Use Diagram (Figure 2.3-1), according to analysis undertaken for the Proposed Plan.

Table 2.3-3: Projected Residential Units at Buildout (2040)[1]

	St. Helena			*Study Areas*			*Planning Area Total*		
	SFR[2]	*MFR[3]*	*Total*	*SFR*	*MFR*	*Total*	*SFR*	*MFR*	*Total*
Existing (2018)	2,100	600	2,700	200	0	200	2,300	600	2,900
Future Development[4]	200	200	300	100	0	100	200	200	400
Total at Buildout	**2,300**	**800**	**3,100**	**200**	**0**	**200**	**2,500**	**800**	**3,300**

Table 2.3-3: Projected Residential Units at Buildout (2040)[1]

Notes:

1. Figures are rounded to the nearest hundred and may not sum due to rounding
2. SFR = Single-Family Residential
3. MFR = Multi-Family Residential
4. Includes pipeline development

Source: Dyett & Bhatia, 2018

Buildout Population

The buildout population takes into consideration the population estimated for 2018, as well as additional population associated with housing units projected to be built through the planning horizon. The population projection assumes a residential vacancy rate of 14 percent based on DOF estimates from 2018 (DOF, 2018), 2.45 persons per household in the city as projected for 2040 by ABAG (ABAG, 2013), and 2.69 persons per household in the study areas as estimated in the 2010 Census for Napa County. Table 2.3-4 describes the projected population at buildout of the Proposed Plan.

Table 2.3-4: Projected Population at Buildout (2040)[1]

	St. Helena	*Study Areas*	*Planning Area Total*
Existing (2018)	5,900	600	6,400
Future Development[2]	700	200	900
Total at Buildout	**6,600**	**700**	**7,300**

Notes:

1. Figures are rounded to the nearest hundred and may not sum due to rounding
2. Includes pipeline development

Source: Dyett & Bhatia, 2018

Employment Projections

The projected number of future jobs was added to the estimated number of existing jobs (as of 2018). Table 2.3-5 describes projected non-residential development in terms of square feet and potential jobs.

Table 2.3-5: Projected Jobs at Buildout (2040)[1]

	St. Helena	*Study Areas*	*Planning Area Total*
Existing (2018)	5,400	500	6,400
Future Development[2]	900	100	900
Total at Buildout	**5,900**	**1,100**	**7,000**

Table 2.3-5: Projected Jobs at Buildout (2040)[1]

Notes:

1. Figures are rounded to the nearest hundred and may not sum due to rounding

2. Includes pipeline development

Source: Dyett & Bhatia, 2018

POLICY AND REGULATORY IMPLEMENTATION

The City would use a variety of regulatory mechanisms and administrative procedures to implement the Proposed Plan. Under California law, St. Helena is required to ensure that its Zoning Ordinance is consistent with the General Plan. In fact, the consistency requirement is the keystone of General Plan implementation. Without a consistency requirement, there is no assurance that Proposed Plan policies broadly related to land use would be implemented.

Zoning Ordinance

The City's Zoning Ordinance translates General Plan policies into specific use regulations, development standards, and performance criteria that govern development on individual properties. The General Plan establishes the policy framework, while the Zoning Ordinance prescribes standards, rules, and procedures for development. The Zoning Map provides more detail regarding the desired location of specific uses than the General Plan Land Use Diagram. As noted above, the current Zoning Ordinance will be revised to implement the new land use provisions of the Proposed Plan, if the Plan is adopted.

Other Plans and Regulatory Items

Other plans and regulatory items specified in the Proposed Plan that will require development or updates to comply with the Proposed Plan include the Noise Ordinance, ordinances that protect habitats and important natural communities, and the Stormwater Master Plan. In addition, the Proposed Plan calls for the development or potential development of several plans and regulatory items, including a historic preservation ordinance, a green building and landscaping ordinance, dark sky ordinance, creek corridor enhancement ordinance, integrated pest management

ordinance, land dedication ordinance, tree ordinance, an ordinance to require new development and redevelopment to provide bicycle and pedestrian improvements and amenities, art in public places program and ordinance, waste management master plan, youth and families master plan, bicycle and pedestrian master plan, hazardous materials response plan, parks and recreation master plan, trail maintenance and operations plan, and arts education master plan.

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3 Environmental Settings and Impacts

Overview

Sections 3.1 through 3.15 analyze the potential environmental impacts that may occur as a result of implementation of the Proposed Plan. The environmental issues subject to detailed analysis in the following sections include those that were identified by the City as potentially significant in response to the NOP. There are 14 environmental issues addressed in the following sections, as well as a brief discussion of additional impacts that were determined to be not potentially significant. The environmental topics addressed are as follows:

3.1 Aesthetics
3.2 Agricultural Resources
3.3 Air Quality
3.4 Biological Resources
3.5 Cultural, Historic, and Tribal Cultural Resources
3.6 Energy, Greenhouse Gas Emissions, and Climate Change
3.7 Geology, Soils, and Seismicity
3.8 Hazards and Hazardous Materials
3.9 Hydrology and Water Quality
3.10 Land Use, Population, and Housing
3.11 Noise
3.12 Public Services and Recreation
3.13 Transportation
3.14 Utilities
3.15 Impacts Not Potentially Significant

These assessments do not satisfy the need for project-level CEQA analysis for individual projects. Individual projects under the Proposed Plan will require project-level analysis at the time they are proposed, based on the details of those projects and the existing conditions at the time such projects are pursued.

Impacts Considered

According to the CEQA Guidelines, the following general types of environmental impacts must be considered in this program EIR:

- **Direct or primary impacts,** which are caused by the project and occur at the same time and place as the project.
- **Indirect or secondary impacts,** which are caused by the project and occur later in time or farther removed in distance but are still reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate, and related impacts on air and water and other natural systems, including ecosystems. Indirect or secondary impacts may also include cumulative impacts.
- **Short-term impacts,** which are those of a limited duration, such as the impacts that would occur during the construction phase of a project.
- **Long-term impacts,** which are those of greater duration, including those that would endure for the life of a project and beyond.
- **Significant unavoidable impacts,** which cannot be mitigated to a level that is less than significant.
- **Irreversible environmental changes,** which may include current or future irretrievable commitments to using non-renewable resources, or growth-inducing impacts that commit future generations to similar irretrievable commitments of resources. Such changes are addressed in Chapter 5: CEQA Required Conclusions.
- **Cumulative impacts,** which include two or more individual impacts that when considered together are considerable or which compound or increase other adverse environmental effects. The individual impacts may be changes resulting from a single project or a program of projects. The cumulative effect from several projects is the change in the environment that results from the incremental effect of the Proposed Plan when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. Cumulative impacts are addressed in Chapter 5: CEQA Required Conclusions.

Organization

Each section is formatted to include a summary of existing conditions, including regulatory context; the criteria for determination of significance for each impact; evaluation of potential project impacts; a mitigation framework, if applicable; and a conclusion of significance after mitigation for impacts identified as significant.

The goals, policies, and implementing actions of the proposed General Plan reduce some impacts of the Proposed Plan, and cases in which existing and proposed regulations, policies, and implementing actions reduce the impacts to a less-than-significant level are documented.

Physical Setting

This subsection provides relevant information about the existing physical environment related to the particular environmental topic. In accordance with Section 15125 of the CEQA Guidelines, the discussion of the physical environment describes existing conditions within the Planning Area at the time the NOP was filed on May 24, 2017, unless otherwise noted.

Regulatory Setting

This subsection describes federal, State, regional, and local plans, policies, regulations, and laws that may apply to the environmental topic under evaluation.

Impact Analysis

This subsection focuses on an analysis of the potential environmental impacts of the Proposed Plan described in Chapter 2, "Project Description," of this EIR. All potential direct and indirect impacts in Chapter 3 are evaluated in relation to applicable City, State, and federal standards. Thresholds of significance based on Appendix G of the CEQA Guidelines are used to identify the potential environmental impacts of the Proposed Plan; the methods used to conduct the impact analysis are summarized; and the impacts analyzed in the respective sub-section are summarized. Following this is a more in-depth analysis of the potential environmental impacts, divided by impact significance criterion, presented in the following format:

Impact 3.X-X **The impact statement briefly summarizes the findings of the impact discussion based on the identified threshold of significance. The level of significance is included at the end of the impact statement. Levels of significance listed in this EIR (as described below) are *no impact, less than significant, less than significant with mitigation,* or *significant and unavoidable*.**

The impact discussion is contained in the paragraphs following the impact statement. The analysis compares implementation of the Proposed Plan to existing conditions. In addition, the effects of policies and implementing actions in the Proposed Plan that will reduce the impacts are discussed.

Mitigation Measures

If the impact is found to be less than significant, no mitigation measures are required. Where no mitigation measures have been identified that could reduce an impact to less than significant, the reason is stated and no mitigation measures are listed.

Determining Level of Significance

For each potential environmental impact identified in this EIR, a statement of the level of significance of the impact is provided. Impacts are assessed as one of the following categories:

The term "no impact" is used when the environmental resource being discussed would not be adversely affected by implementation of the Proposed Plan. It means no change from existing conditions. This impact level does not need mitigation.

A "less than significant" impact would cause a minor change in the physical environment but would not meet or exceed the significance threshold. This impact level does not require mitigation, even if feasible, under CEQA.

An impact that is "less than significant with mitigation" would have a substantial adverse effect on the physical environment but could be reduced to a less than significant level with mitigation. Under CEQA, mitigation measures must be provided, where feasible, to reduce the magnitude of significant or potentially significant impacts.

A "significant and unavoidable impact" would cause a substantial adverse effect on the environment, and no known feasible mitigation measures are available to reduce the impact to a less than significant level. Under CEQA, a project with significant and unavoidable impacts may be approved, but the lead agency (in this case, the City) must prepare a "statement of overriding considerations" in accordance with Section 15093 of the CEQA Guidelines, explaining how the benefits of the project outweigh the potential for significant impacts.

3.1 Aesthetics

This section assesses potential local and regional impacts on aesthetics from future development under the Proposed Plan, including issues related to scenic vistas, visual character, and light and glare. The section provides context regarding the Planning Area's existing visual character and scenic resources, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

Visual Character Overview

St. Helena's small-town character is embodied in its distinctive architecture, tree-lined streets, and the visually prominent vineyards at the city's entryways and interspersed throughout portions of the community. The general ambience is also characterized by many natural features that surround and adjoin residential and commercial areas, such as Sulphur Creek, York Creek, the Napa River, and the oak and bay wooded hillsides found at the north end of St. Helena and the far eastern edge along Howell Mountain Road (east of the Napa River). Vineyards form one of the main visual amenities within the city, with their changing seasonal qualities, ranging from vibrant summer and fall colors to bare branches in winter. The vineyards also provide view corridors to the hillsides west and east of the city center. Other open space amenities include the city's parks such as Jacob Meilly Park, Crane Park, Lyman Park, and Wappo Park. Architectural elements of significant merit include the many historic buildings found along Main Street and throughout St. Helena.

The three study areas are largely consistent in visual character to the City of St. Helena. Study Area 1 is mostly undeveloped land and single-family residential homes located on steep hillsides. The Meadowood Golf Club is located in the northwest portion of Study Area 1. Study Area 2 is flat, undeveloped land south of the wastewater treatment plant. Study Area 3 is located south of the City of St. Helena's boundary, along State Route (SR) 29, and is a mix of commercial, residential, and agricultural properties.

Scenic Resources and Vistas

The Planning Area is framed on the west and east by the undeveloped wooded foothills of the Mayacama and Vaca mountains, respectively. These foothills are visibly prominent from many locations in the flatland areas of the City of St. Helena, especially from east/west streets in the center of the city. While there are many scenic resources and vistas within the Planning Area, there

are no specific scenic resources or vistas designated for protection in the existing adopted General Plan.

Entries and Corridors

The major highway entry into the Planning Area from both the north and south is SR 29, also identified as Main Street within the City of St. Helena. Motorists and bicyclists using this corridor view large expanses of vineyards and various wineries along the highway when entering from the south. From the north, wooded hillsides frame the view on the western side of the highway, and vineyards and level areas of open space frame the view on the eastern side. The Planning Area is separated from Calistoga to the north and Yountville to the south by vineyards and undeveloped lands, allowing uninterrupted views along long stretches of SR 29 from both the north and south of the city.

The City of St. Helena sits in a relatively narrow valley, framed by foothills to the east and west. Transportation corridors in this area are limited to Main Street, the Silverado Trail to the east of the center of town, and two-lane, east/west streets. The main road connection to the west is Spring Mountain Road. Where this two-lane, rural road enters the Planning Area at the northwest corner of St. Helena, views are predominantly of low-density urban development.

From the east, visitors and residents enter the Planning Area along Deer Park Road and Pope Street. Deer Park Road is at the far northern edge of the city and passes through large undeveloped areas and wide expanses of vineyards. Pope Street is lined with low-density residential development, Wappo Park, the Napa River, and some large areas of open space and vineyards.

One highly visible feature along many of the roadway corridors within the Planning Area is overhead electrical lines, which can create a sense of "visual clutter" within important viewsheds. The northern entrance to the city includes such overhead lines. Electrical lines are also visible along the Wine Train railroad tracks, within alleys, and along many roadways where undergrounding of electrical lines has not occurred.

Scenic Roads

A scenic road may be considered (often in the CEQA context) as a highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and human-made scenic resources. Scenic roads direct views to areas of exceptional beauty, natural resources or landmarks, or historic or cultural interests. While several roads in the Planning Area have unique scenic qualities because of their natural setting as well as historical and cultural features, the City has not established any formal scenic road designations within the city boundary and has not created any development criteria or design guidelines related to scenic roadways.

Caltrans has designated Main Street (SR-29) as an eligible State Scenic Highway, but this route has not been officially listed by the State. No other roads in the Planning Area have been classified as a Scenic Highway.

Community Character

Downtown

Downtown St. Helena, a National Register Historic District, is a mixture of historic and newer buildings largely concentrated along Main Street. Key landmark buildings include the Starr, Galleron, Ritchie, Oddfellows, and Pritchard buildings. Street trees, wide sidewalks, street parking, and pedestrian features, such as benches, define this core area of the city. From Main Street, views to nearby natural features are generally screened by intervening buildings. Smaller side streets, such as Adams Street, Railroad Avenue, and Hunt Avenue, also include commercial businesses.

Many of the historic masonry and wooden structures built from stone, brick, and timber, typically three stories or less in height, and located along Main Street between Spring and Adams streets, were built during the City's second major period of growth in the late 19th and early 20th centuries. The architectural details of these structures, such as brick dentils, medallion insets, and window fenestration, are reflective of the many Italian and Swiss immigrants, who were trained stonemasons and quarrymen and were early settlers in St. Helena (St. Helena General Plan, 2018). These historic structures are an important part of St. Helena's visual character.

Similar to many western cities, St. Helena's historic street pattern and layout, largely visible Downtown, is characterized by a traditional grid pattern, with variances that result from the intersection of railroad lines, creeks, and regional roadways. As St. Helena grew during the latter part of the 20th century, a modified street pattern developed with wide curvilinear streets, cul-de-sacs, and fewer bicycle and pedestrian connections, which are characteristic of the residential neighborhoods east and west of Downtown.

Signage within Downtown, and throughout St. Helena, is regulated by the City's Zoning Ordinance. Prohibited signs, which are listed in St. Helena Municipal Code Section 17.148.030 ("Regulatory Settings" section below), include billboards, revolving or moving signs, signs with flashing illumination, roof signs, and more. These regulations reduce the visual clutter of Downtown and preserve the visual character of the historic neighborhood.

Open Space and Agriculture

Open space areas and agricultural lands provide a variety of benefits, including visual enjoyment and aesthetic beauty. The Proposed Plan designates approximately 65 75 percent of the city as open space, agricultural land, woodlands/watershed, and/or parkland. Of this, about 71 percent is agricultural acreage. When account for the entire Planning Area, including the study areas, the percent of land designated as these land uses is approximately 69 percent. Much of the open space and agricultural acreage is located outside of the City of St. Helena's Urban Limit Line (ULL) but within city boundaries. The entirety of the study areas is designated by Napa County as either Agricultural Resources or Agriculture, Watershed, and Open Space. The many vineyards within the Planning Area provide an important visual amenity, allowing uninterrupted views to nearby foothills and providing a dynamic visual feature that changes with each season. These vineyards, a majority of which are designated as agricultural land uses, are an important distinguishing feature of the Planning Area.

Light and Glare

Light and glare sources within the Planning Area are primarily associated with residential, commercial, and industrial land uses. Streetlights are provided with the greatest frequency along major streets, such as SR 29. Streetlights are located in lesser frequencies in the more rural and agriculture portions of the Planning Area. In commercial and industrial areas, signage and cars in parking lots may produce light. Glass and reflective surfaces on buildings, residences, and vehicles traveling in the area and in parking lots in the downtown contribute to a limited amount of glare. The light and glare that exist in developed areas of the city are typical for an urbanized setting.

REGULATORY SETTING

Federal Regulations

There are no relevant federal laws, policies, plans, or programs that apply to the Proposed Plan.

State Regulations

California Scenic Highways Program

The California Scenic Highway Program, established in 1963, identifies and designates certain highways, along with adjoining land uses and features, which require special conservation treatment. The responsibility for the management of the program is left to local cities and counties. Highways shown as "eligible" for listing are believed to have outstanding scenic value. Once a highway is shown in "Streets and Highways Code Section 263" (which is the case for SR 29), it may be nominated for official designation by the local governing body with jurisdiction over the lands adjacent to the proposed scenic highway. A visual assessment is required, and a number of other steps must be followed.

SR 29 through all of Napa County is shown as "eligible for designation as a scenic highway"; however, it has not been formally designated (California Department of Transportation, 2011). Neither the existing nor proposed St. Helena General Plan designates any St. Helena roadway as a scenic road.

California Energy Commission Lighting Standards

In November 2003, the California Energy Commission adopted changes to Title 24 (Building Energy Efficiency Standards) regarding outdoor lighting. These new standards addressed both reduced energy consumption and reduced glare from outdoor lighting. The standards vary by "lighting zone." Zone 1 refers to parks, recreation areas, and wildlife preserves. Zone 2 refers to rural areas, and Zone 3 refers to urban areas. Lighting Zone 4 is a special use district that may be adopted by a local government where high ambient lighting is permissible. Local jurisdictions can designate special neighborhoods as a different lighting zone when appropriate. For example, a special commercial district may be designated Lighting Zone 3 in a rural area. The Planning Area, including the City of St. Helena, would be considered a rural area, because it is not identified by the U.S. Census as an urban area. The City has not designated individual zones within its jurisdiction, based on these criteria. However, individual photometric studies (which do utilize these criteria) may be required for development projects as a part of CEQA review and analysis to assess individual project impacts.

Local Regulations

City of St. Helena Municipal Code

Chapter 12.24 Trees and Other Vegetation

Sections 12.24.110 to 12.24.150 address the designation, protection, maintenance, and removal of heritage trees. A "heritage tree" is defined by the City as "any tree or grove of trees within the city boundaries designated by a resolution of the city council and having met the requirements set forth in this chapter." These requirements include trees that have historical significance; are over thirty inches in diameter measured four and one-half feet above the ground; are a unique or rare horticultural specimen; are unique in size or age; have aesthetic value due to symmetry, form, color, or other qualities; are an outstanding specimen of a desirable species, especially native oak species; and/or have significance for habitat preservation, including where a tree is one of a group of trees each dependent on the other for survival. Maintenance of heritage trees in the city are strictly-regulated, as is the removal and protection of heritage trees during construction activities.

Chapter 17.48 Central Business (CB) District

Chapter 17.48 establishes a Central Business (CB) district to provide for "retail, personal service uses, offices, restaurants, hotels/motels, service stations, public and quasi-public uses, and similar and compatible uses that serve local residents and the surrounding area" (Section 17.48.010). This zoning prohibits the demolition of a significant architectural or historical building—as determined by the Planning Commission—unless the Commission finds that (1) the structure poses a threat to health, safety, and general welfare if it is not demolished; (2) that restoration of the structure is not feasible or practicable using current building codes including, but not limited to, the Historic Building Code provision of the Uniform Building Code of the state; and (3) that no public or other funding is available for financing State Historic Building Code, as amended and adopted by the City.

Chapter 17.64 Woodlands and Watershed (WW) District

Chapter 17.64 establishes a Woodlands and Watershed (WW) district to protect the natural environment of such designated lands, such as reducing erosion and fire potential, minimizing siltation and sedimentation in waterways, and preserving wildlife habitat, views, and ridgelines. This purpose is achieved through regulation of uses and urban design including setbacks and building height, prohibiting the location of structures on steep slopes, and protection of natural features, including streams, trees, and other biological resources.

Chapter 17.92 Historic Preservation Overlay (HP) District.

Chapter 17.92 establishes a Historic Preservation Overlay (HP) district "to preserve the unique architectural character of those certain specific structures which have contributed to the City's historic development" (Section 17.92.020). The Planning Commission must determine buildings that will be protected within an HP overlay district. Protections include restrictions on historically inappropriate exterior alterations, demolition and restoration, and economic incentives for the preservation of significant buildings.

Chapter 17.148 Signs

Chapter 17.148 Signs regulates the size, location, and types of signs permitted in the City of St. Helena. Prohibited signs, which are listed in Section 17.148.030, include billboards, revolving or moving signs, signs with flashing illumination, roof signs, balloon signs, vehicular signs, and more. New signs, additions to a sign, alterations of a sign, or the replacement of a sign must be approved by either an administrative or planning commission sign permit.

Chapter 17.164 Design Review

Chapter 17.164 of the St. Helena Zoning Ordinance addresses requirements for design review. The stated purpose of the design review process is the following:

- To promote those qualities in the environment which bring value to the community;
- To foster the attractiveness and functional utility of the community as a place to live and work;
- To preserve the character and quality of our heritage by maintaining the integrity of those areas which have a discernible character or are of special historic significance;
- To protect certain public investments in the area;
- To encourage, where appropriate, a mix of uses within permissible use zones; and
- To raise the level of community expectations for the quality of its environment.

Design review applies to most new development, as well as the modification of the exterior of many structures. For example, after a Tentative Subdivision Map is approved, building plans for individual residential lots must be submitted, as each residential unit is required to obtain discretionary design review approval.

Title 17 Zoning

Requirements for lighting to reduce light pollution and glare are located throughout the St. Helena Zoning Ordinance, including:

- Chapter 17.60 Industrial (I) District requires "exterior lighting shall be directed or shielded so as to prevent glare onto any residential property or public roadway."
- Chapter 17.68 Public and Quasi-Public (PQP) District requires "all exterior lighting shall be directed or shielded so as to prevent glare onto any public roadways and properties of a residential character."
- Chapter 17.76 Open Space (OS) District requires "all exterior lighting shall be directed or shielded so as to prevent glare onto any public roadways and properties of a residential character."
- Chapter 17.124 Parking and Loading Requirements requires "any lighting fixture used to illuminate a parking lot shall be affixed to buildings or standards at a height of not more than fifteen feet and shall be directed and/or shielded so as to not cause excessive glare visible on properties in surrounding residential districts."

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Have a substantial adverse effect on a scenic vista;**

Criterion 2: **Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;**

Criterion 3: **Substantially degrade the existing visual character and quality of the site and its surroundings; or**

Criterion 4: **Create a new source of substantial light or glare that would adversely affect day- or night-time views in the area.**

METHODOLOGY AND ASSUMPTIONS

Aesthetics and visual resources are generally subjective by nature, and therefore the extent of visual impact associated with adoption and implementation of the Proposed Plan can be difficult to quantify. In addition, it is difficult to estimate the impact future development would have on scenic resources, since individual development projects can be designed to be compatible with and/or enhance the aesthetic quality of an area. As such, this analysis was based on the overall amount of new development at buildout of the Proposed Plan, the potential location of new development, and policies in the Proposed Plan.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to aesthetics in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to aesthetics in the study areas. Cumulative impacts related to aesthetics are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Land Use and Growth Management Element

- ***LU2.2*** Encourage new residential development that is consistent in design, size, color, and floor area ratio (FAR) footprint with the older residences in the neighborhood.
- ***LU2.3*** Protect residential neighborhood views of surrounding vineyards and mountains.
- ***LU2.6*** Allow residential density at the higher end of the permitted range for single family development within Medium and High Density Residential Land Use designations as long

as the development character of the single family area is maintained, including lot widths, orientation to street, building heights, onsite parking, traffic, and noise, among other considerations.

- ***LU2.B*** Develop and implement residential design guidelines and/or form-based codes, to provide oversight and guidance for new buildings and renovations. Guidelines should ensure that new residential development is consistent with the design, size, and footprint of older residences in the neighborhood. Consider the impact of new development on surrounding residences.

  (Also see the following elements: Community Design, Topic Area 3; and Economic Sustainability, Topic Area 3).

- ***LU2.C*** Implement view shed protection review for residential development as part of an updated design review process.
- ***LU2.E*** Update zoning standards to encourage the following criteria:
  - A variety of lot widths and sizes, such as that found in the older areas of town;
  - Garages at the rear of lots rather than on the street; or creative garage designs that incorporate the "garage door" frontage appearance to blend into the home;
  - Lot coverage and floor area ratio (FAR) that is consistent with the scale of historic and older areas;
  - Planting of street trees and planting strips along sidewalks; and
  - Setbacks, building massing, and configuration consistent with older parts of neighborhoods.
- ***LU3.6*** Continue to work with the County of Napa to review land use and design changes for projects in the unincorporated areas at the City's gateways.
- ***LU3.11*** Ensure that new commercial development does not obstruct view corridors to the mountains.
- ***LU4.B*** Develop and implement industrial design guidelines and/or form-based codes, to provide oversight and guidance for new buildings and renovations. Guidelines should ensure that new industrial development is consistent with the City's character.

Community Design Element

- ***CD1.8*** Require, to the extent feasible, that all new development include underground utilities to minimize their negative visual impact. In addition, funding sources to underground electrical lines shall be sought so the undergrounding of existing overhead lines can occur over time.
- ***CD2.4*** Ensure active and complete streets within commercial districts by providing sidewalk amenities, such as landscape buffers, berms, street trees, street furniture, outdoor dining, public art, signage, and wayfinding.
- ***CD2.5*** Encourage property owners to improve façades and landscaping surrounding existing buildings through the implementation of beautification programs.

- ***CD2.B*** Require street tree plantings along the commercial streets east and west of Main Street to reflect Main Street's existing planting pattern, in order to provide visual continuity and to create a pleasant pedestrian environment.
- ***CD2.E*** Adopt and implement façade and landscape beautification programs to provide assistance to owners of existing properties.
- ***CD2.F*** Explore the need for additional programs, such as commercial façade improvement programs and traffic-calming incentive programs.
- ***CD3.3*** Encourage the use of landscaping and tree plantings as buffers between sidewalks and residential uses. Discourage the removal of existing trees and adopt more comprehensive tree preservation standards.

  (See also the Open Space and Conservation Element for policies and implementing actions related to tree preservation).
- ***CD3.4*** Ensure safe bicycle and pedestrian-friendly character on all residential streets. Consider retrofitting existing wide residential streets, such as Starr Avenue, with landscaped medians, wide sidewalks, and adjacent Class I pedestrian and bicycle trails.
- ***CD3.C*** Encourage the design and location of parking to minimize its appearance on front façades, locating it to the side or rear of the building, where feasible.
- ***CD3.D*** Encourage property owners to install landscaping and tree plantings in front setbacks as a buffer between the sidewalk and residential uses.
- ***CD3.E*** Require new development to include landscaping and street trees.
- ***CD5.1*** Preserve the visual and physical connection to agriculture by protecting views from streets, parks and open spaces to vineyards, agriculture, and hillsides. Where new streets are extended adjacent to agriculture, encourage hillside and vineyard views by maintaining agricultural activities at the road edge. Existing east and west entries should be maintained in their current appearance, protecting and improving views of vineyards and the surrounding hillsides wherever possible.
- ***CD5.2*** Use public streets or pathways to form the edge of developed areas, allowing views of open space from streets.
- ***CD5.3*** Ensure that key gateways into the City receive special, character-defining treatments and landscaping. Consider establishing landmark trees along the roads that serve as gateways to the City. New commercial development on Main Street south of the Sulphur Creek bridge should be carefully designed to provide an appropriate gateway in to the downtown area.
- ***CD5.4*** Preserve and enhance the City's nighttime environment and quiet rural sounds of the night for residents and wildlife by limiting the negative effects of artificial lighting.
- ***CD5.A*** Working with CALTRANS, design and install a landscaping treatment for the northbound (State Route 29 from Chaix Lane north to Sulphur Creek) and westbound (from Silverado Trail west along Pope, and any future roadway segment from the Trail to downtown) gateways into the City. Consider a tunnel of trees similar to those located at the northern gateway.

- ***CD5.B*** Adopt a dark sky ordinance to preserve the City's rural character by limiting the negative effects of light pollution on wildlife and community aesthetics. Develop lighting design guidelines for new development that mitigate light pollution while ensuring adequate nighttime security.
- ***CD5.C*** New development shall not result in significant light, glare, and noise that could affect residents, visitors, and wildlife. Lighting shall be shielded to reduce glare and shall be cast downwards. Outdoor new lighting shall occur primarily for the purpose of security and safety. Upcast lighting shall be discouraged to minimize impacts on wildlife and to retain the agricultural ambience of St. Helena. All lighting shall conform to the Lighting Zone 2 requirements of Title 24 of the California Building Code.
- ***CD5.D*** The City shall encourage the undergrounding of any new electrical lines required to serve new development. In addition, funding sources to underground existing electrical lines shall be sought so that undergrounding of existing overhead electrical lines can occur over time.
- ***CD5.E*** The City shall investigate the possibility of designating all or a portion of State Route 29 that passes through the City of St. Helena as a scenic highway under the State's scenic highway program.

IMPACTS

Impact 3.1-1 Implementation of the Proposed Plan would not have a substantial adverse effect on scenic vistas. (*Less than Significant*)

Development as a result of the Proposed Plan would have a significant impact if it blocked or degraded scenic vistas. There are important viewsheds within the Planning Area, such as those of historic resources, vineyards, and hillsides, which contribute to the aesthetic quality of St. Helena. Development under the Proposed Plan would have the potential to obstruct such existing views within the city. Change Areas, as depicted in Figure 2.3-3 in Chapter 2, Project Description, have the greatest potential to undergo changes, especially where no development currently exists and where open space/vineyard lands are located.

Due to potential visual impacts of new development, the Proposed Plan includes policies that seek to preserve existing public and private scenic vistas from potential development. Nearly all new development under the Proposed Plan would be required to obtain design review approval (including meeting all design review criteria identified in Zoning Code Section 17.164). New development would also have to meet the view protecting policies of the Proposed Plan, ensuring development would not be out-of-scale with surrounding development in terms of mass and height, as well as preserve existing scenic resources and visual character. Scenic vistas would be protected by policies LU2.3, LU2.C, LU3.11, CD5.1, and CD5.2.

The combination of the City's design review process, the majority of new development within the City's Urban Limit Line occurring within close proximity to existing development, and the relevant Proposed Plan policies referenced above would reduce any potential impact on scenic vistas to a level that is less than significant.

Mitigation Measures

None required.

Impact 3.1-2 Implementation of the Proposed Plan would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. (*Less than Significant*)

New development associated with the Proposed Plan would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. As mentioned in the Environmental Setting section above, no designated scenic highways currently pass through St. Helena. However, SR-29 has been identified by the California Scenic Highway Program as eligible for such designation.

Policy LU3.6 calls for coordination with the County of Napa to review land use and design changes for projects in unincorporated areas at the City's gateways, which would provide an opportunity to identify and mitigate, if necessary, negative impacts on scenic resources from SR-29. Policy CD5.3 ensures that key gateways into the city would receive special character and defining treatments and would help to protect the view from SR-29 as it passes through St. Helena.

Due to the lack of any designated state scenic highways within the city and policies and implementing actions included in the Proposed Plan, impacts on scenic resources within a state scenic highway would be less than significant.

Mitigation Measures

None required.

Impact 3.1-3 Implementation of the Proposed Plan would not substantially degrade the existing visual character or quality of St. Helena and its surroundings. (*Less than Significant*)

Implementation of the Proposed Plan could substantially degrade the existing visual character or quality of the Planning Area if new development occurring under the Proposed Plan introduced built elements that were significantly out of character with existing development in terms of height, massing, or quality of design or materials. The visual character of the Planning Area is currently characterized by a historic Downtown, tree-lined streets, high-quality residential design, agricultural uses, and prominent natural features, such as the Napa River and surrounding hillsides. New development would not substantially degrade the existing visual character and quality of the site or its surroundings because of the City's current regulations and Proposed Plan policies.

Generally, the City of St. Helena design review process would regulate new development and redevelopment for consistency with existing style, character, and quality. The City has an adopted sign ordinance that limits the size, type, and lighting of signs to minimize visual intrusion and clutter within the city. The Urban Limit Line would also require new development to occur in close proximity to existing development, which would preserve the visual character of the city's rural and agricultural areas. Specific zoning designations and overlays within the Zoning Code protect various neighborhoods within the city from visually intrusive development. The Central Business

District and Historic Preservation Overlay protect the historic resources within Downtown. The Agricultural Preservation and Woodlands and Watershed districts aim to preserve existing agricultural, open space, and hillside areas.

In addition, the Proposed Plan's land use designations, policies, and implementing actions are intended to limit any visually incompatible development in the city while enhancing the area's overall visual quality. While in some cases the Proposed Plan may permit higher densities and intensities than what currently exists in the City of St. Helena, any new development would be subject to policies and implementing actions, including LU2.2, LU2.6, LU2.B, LU2.E, and LU4.B, in the Proposed Plan that emphasize visual compatibility with surrounding development. Policy LU3.6 encourages coordination with Napa County to ensure that projects in the unincorporated areas bordering St. Helena, including the study areas, are also consistent. Policy CD1.8 addresses the aesthetic effects of overhead wires and cables on main roadways in the community. Additionally, many of the policies listed above address general visual character and quality, such as street trees, landscaping, benches, bicycle racks, and other amenities to preserve the aesthetic value of the City of St. Helena.

Therefore, with compliance with existing regulations and implementation of the proposed policies, the impact of on the visual quality of the city from implementation of the Proposed Plan would be less than significant.

Mitigation Measures

None required.

Impact 3.1-4 Implementation of the Proposed Plan would create new sources of substantial light or glare that could adversely affect day- or night-time views in the area. (*Less than Significant*)

Existing developed areas in the city currently generate some light and glare, and new development that would be facilitated by the Proposed Plan could result in increased light and glare. Some elements of the built environment, such as parking lots, commercial buildings, and signs, may emit light for 24 hours a day. New sources of daytime glare could include new buildings with reflective surfaces, such as office buildings with glazed windows. Such light and glare could affect residential areas, as well as areas frequented by wildlife.

The St. Helena Zoning Code, as discussed in the Regulatory Settings section above, prohibits lighting that would negatively impact residential development and roadways. The City's design review process would further reduce light and glare for new construction or redevelopment projects through a discretionary process whereby projects must show compatibility with surrounding areas.

In addition to the Municipal Code, the Proposed Plan includes policies and actions to reduce the amount of new light and glare. Implementing Action CD5.B requires the City to adopt a "Dark Sky" ordinance to preserve the City's rural character by limiting the negative effects of light pollution on wildlife and community aesthetics. This Action also requires the implementation of lighting design guidelines for new development to minimize adverse effects of lighting while ensuring adequate nighttime security. Implementing Action CD5.C requires new development in

the community not to generate significant light or glare impacts. Future lighting shall be shielded and directed downwards to minimize glare, and upcast lighting is discouraged. Several Proposed Plan policies, such as CD2.4, CD2.5, CD3.3, CD3.4, CD5.3, CD5.4, and implementing actions, including LU2.E, CD2.B, CD2.E, CD3.C, CD3.D, CD3.E, and CD5.A, encourage landscaping and street trees, which can also help to reduce glare, especially in surface parking lots.

Adherence to implementing actions contained in the Proposed Plan, combined with the design review process generally required for new development and redevelopment, would reduce future light and glare impacts to a less than significant level.

Mitigation Measures

None required.

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3.2 Agricultural Resources

This section assesses potential environmental impacts on agricultural resources from future development under the Proposed Plan, including those related to Prime Farmland, Unique Farmland, and Farmland of Statewide Importance; agricultural zoning and Williamson Act contracts; and the conversion of farmland to non-agricultural uses. This section describes existing agricultural resources in the Planning Area, as well as relevant federal, State, and local regulations and programs.

Environmental Setting

PHYSICAL SETTING

Farmland Classification

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) classifies farmland into the following categories based on soil type and current land use:

- **Prime Farmland.** Land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when managed (including water management) according to current farming methods. Prime Farmland must have been used for the production of crops within the last three years.
- **Farmland of Statewide Importance.** Land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production. Similar to Prime Farmland, Farmland of Statewide Importance must have been used for crop production within the last three years.
- **Unique Farmland.** Land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but which is currently used for the production of specific high economic value crops (as listed in the last three years by the California Department of Food and Agriculture). It has the special combination of location, soil quality, growing season, and moisture supply to produce sustained high quality or high yields of a specific crop (e.g., oranges, olives, avocados, rice, grapes, and cut flowers) when treated and managed according to current farming practices.
- **Farmland of Local Importance.** Land that is either currently producing crops or has the capability to do so. It is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, but it may be important to the local economy due to its productivity.

- **Grazing Land.** Land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing.

All categories exclude publicly owned land for which there is an adopted policy preventing agricultural use. The FMMP designations are informational only and do not constitute any regulatory policy. Designations of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are referred to collectively in this analysis as Important Farmland.

Agricultural Context

California is the country's leading agricultural producer and exporter. The Planning Area is located in Napa County, which ranked in the top 20 California counties for total value of production at $737,298 (CDFA, 2016). The county's top four commodities by gross value in 2016 were grapes/wine, cattle, miscellaneous nursery products, and walnuts. There are 31,609 acres of farmland in Napa County (Napa County, 2017).

In the State of California, productive farmland acreage has been gradually declining, due primarily to the conversion of farmland to non-agricultural uses. Between 1984 and 2010, the area of farm and grazing lands in the state declined by more than 1.4 million acres, including a loss of 662,000 acres of Prime Farmland, the farmland type with the best soils for agricultural production (Department of Conservation, 2014). While the average annual acreage count has been decreasing since 1984, Napa County has seen an increase in the total area of agricultural land since 2014, gaining nearly 365 net acres of agricultural land between 2014 and 2016, including an overall gain of 149 acres of Important Farmland and 216 acres of grazing land (FMMP, 2016).

Existing Farmland in the Planning Area

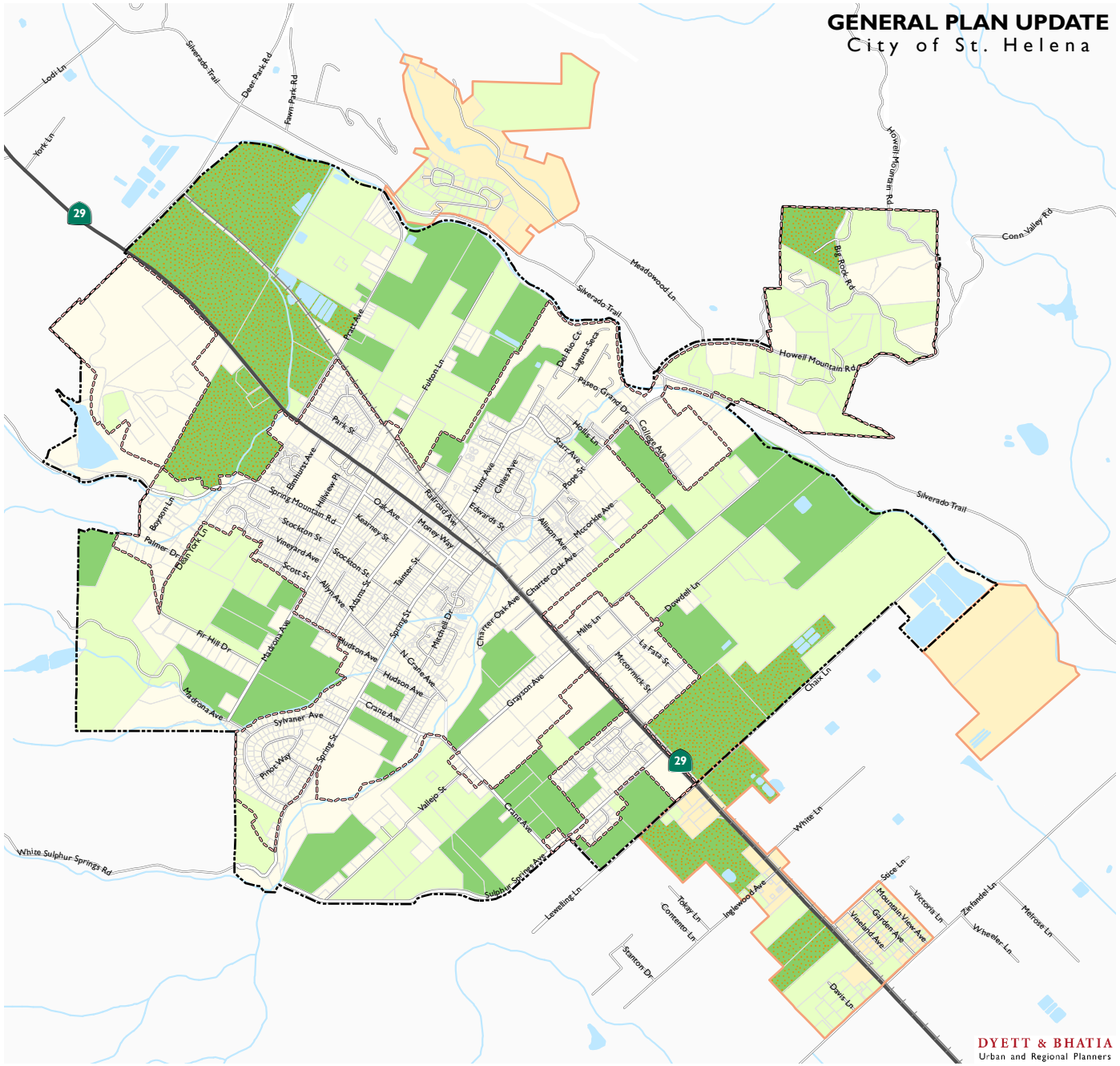
Farmland Characteristics

Agricultural uses, including wineries, occupy 916 acres (25 percent) of the total land area within the Planning Area. Agricultural uses in the City of St. Helena are located adjacent to the City's Urban Limit Line (ULL), with large areas around the periphery of the city. The majority of existing agricultural uses in the city are related to viticulture, with vineyards and winery facilities. Figure 3.2-1 shows existing agricultural land uses in the Planning Area, based on Napa County Assessor's data and review of aerial imagery. Areas indicated as Ag/Rural Residential consist primarily of vineyards with one or two single-family residences on the property. Areas shown as Agriculture are primarily vineyards. Areas shown as Winery generally include vineyards, but also include wine production facilities of varying sizes. In the unincorporated study areas, agricultural uses are mapped in Study Area 1, including Ag/Rural Residential uses, and Study Area 3, with some Ag/Rural Residential as well as Winery.

Figure 3.2-1

Existing Agricultural Land Uses

- Ag/Rural Residential
- Agriculture
- Winery
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Important Farmland

Figure 3.2-2 illustrates the locations of lands classified by the FMMP as Important Farmland or Grazing Land within the City of St. Helena and the study areas. Table 3.2-1 summarizes the Planning Area's FMMP classifications. The city limits encompass approximately 956 acres of land identified as Prime Farmland, 284 acres of Farmland of Statewide Importance, 53 acres of Unique Farmland, and 33 acres of Farmland of Local Importance. No Grazing Land was mapped within the city limits.

Table 3.2-1: Farmland Types and Acreages (2016)

	City of St. Helena		*Study Areas*		*Planning Area Total*	
FMMP Categories	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Prime Farmland	898.89	28.56%	161.89	35.95%	1060.78	29.48%
Farmland of Statewide Importance	278.65	8.85%	3.32	0.74%	281.98	7.84%
Unique Farmland	38.13	1.21%	-	-	38.13	1.06%
Farmland of Local Importance	75.23	2.34%	-	-	75.23	2.09%
Grazing Land	4.07	0.13%	-	-	4.07	0.11%
Total Agricultural Land	**1,294.97**	**41.14%**	**165.22**	**35.68%**	**1,460.19**	**40.58%**

Sources: Farmland Mapping and Classification Program (FMMP), 2016; Dyett & Bhatia, 2018

Williamson Act Contracts

As of 2016, there were 171 acres of farmland under Williamson Act contracts in the Planning Area, as listed in Table 3.2-2 and shown in Figure 3.2-2. Six properties subject to Williamson Act contract are located within the city limits. Of these six properties, three are located on the west side of Main Street between the El Bonita Motel and Grayson Avenue, and the other three are located on Vallejo Street near the western city limits. All six properties are located outside of the Urban Limit Line. In addition, there are two properties located in Study Area 2 covering the City of St. Helena's seep fields, and one property located along State Route 29 (SR-29) just south of city limits. As of October 2017, none of the contracts in the Planning Area are in non-renewal. The Williamson Act is discussed in further detail in the Regulatory Setting below.

Table 3.2-2: Williamson Act Contracts

Location	*Acres*
Within City Limits	54.74
Within Study Areas	116.74
Total	171.47

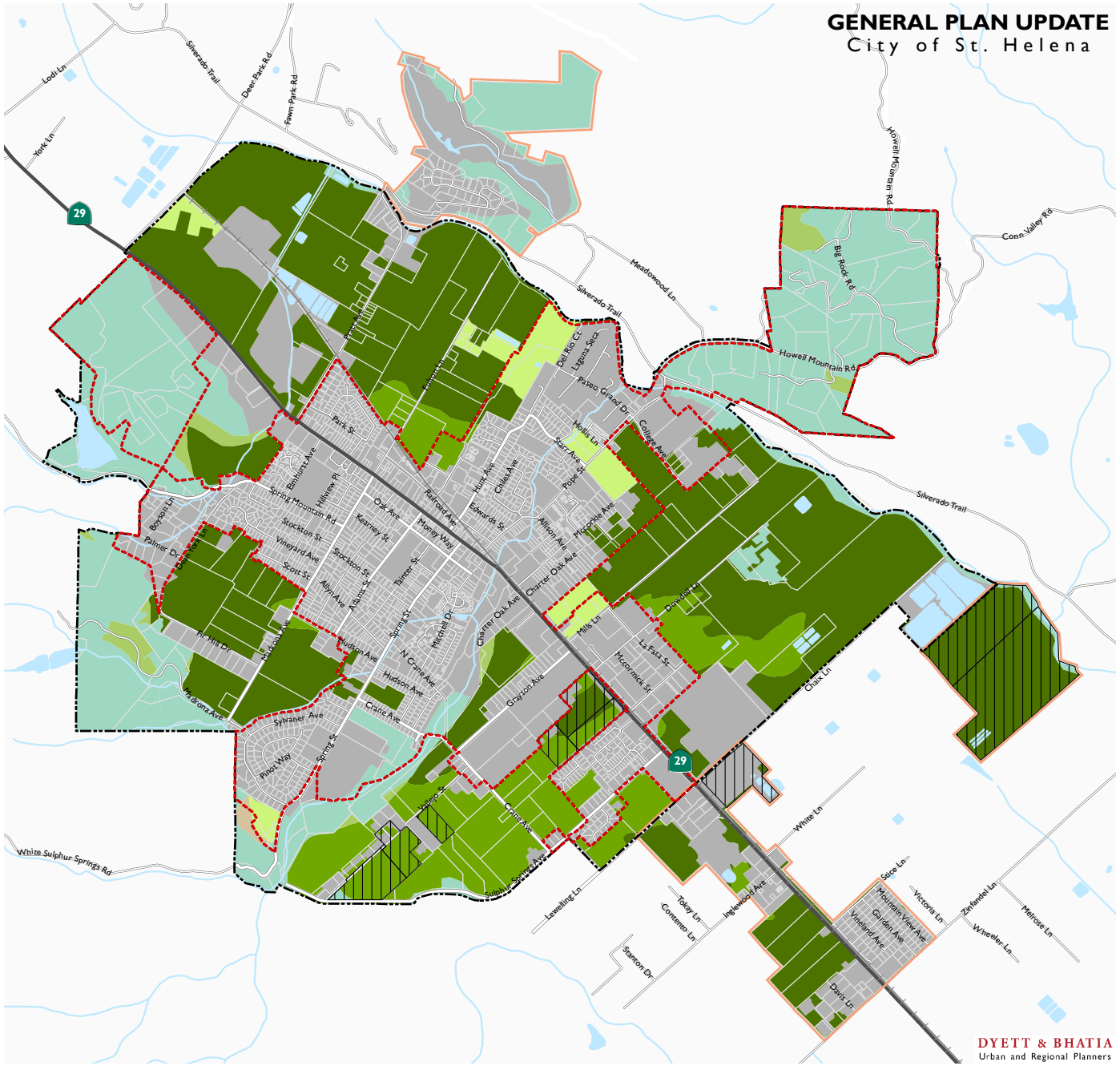
Note: Numbers may not sum due to rounding.

Sources: Farmland Mapping and Classification Program (FMMP), 2016; Dyett & Bhatia, 2018

Figure 3.2-2

Agricultural Resources

- Williamson Act Parcels
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land
- Other Land
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; FMMP, 2016; Dyett & Bhatia, 2018

Regulatory Setting

FEDERAL REGULATIONS

Federal Farmland Protection Policy Act, 7 U.S. Code Section 4201 and 7 Code of Federal Regulations 658

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) oversees the Farmland Protection Policy Act (FPPA) (7 U.S. Code [USC] Section 4201 et seq.; see also 7 Code of Federal Regulations [CFR] 658). The FPPA (a subtitle of the 1981 Farm Bill) is national legislation with the following stated purpose: "to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." The FPPA applies to projects and programs that are sponsored or financed in whole or in part by the federal government and does not apply to private construction projects subject to federal permitting and licensing, projects planned and completed without assistance from a federal agency, federal projects related to national defense during a national emergency, or projects proposed on land already committed to urban development. The FPPA spells out requirements to ensure federal programs to the extent practical are compatible with state, local, and private programs and policies to protect farmland and calls for the use of the Land Evaluation and Site Assessment (LESA) system to aid in analysis.

U.S. Department of Agriculture Natural Resources Conservation Service

The U.S. Department of Agriculture's Natural Resources Conservation Service maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. In addition to many other natural resource conservation programs, the NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, USDA joins with state, tribal, or local governments to acquire conservation easements or other interests from landowners.

STATE REGULATIONS

Farmland Mapping and Monitoring Program

The California Department of Conservation FMMP classifies farmland into five different categories based on soil type and current land use, as described in the Physical Setting. The minimum mapping unit is 10 acres, with the exception of grazing land, which is 40 acres. See Table 3.2-1 for a listing of acreage by farmland classification in the Planning Area.

California Farmland Conservancy Program

The California Farmland Conservancy Program (Public Resources Code Section 10200 et seq.) supports the voluntary granting of agricultural conservation easements from landowners to qualified nonprofit organizations, such as land trusts, as well as local governments. Conservation easements are voluntarily established restrictions that are permanently attached to property deeds, with the general purpose of retaining land in its natural, open-space, agricultural, or other condition while preventing uses that are deemed inconsistent with the specific conservation purposes expressed in the easements. Agricultural conservation easements define conservation

purposes that are tied to keeping land available for continued use as farmland. Such farmlands remain in private ownership and the landowner retains all farmland use authority, but the farmland is restricted in its ability to be subdivided or used for non-agricultural purposes, such as urban uses.

California Land Conservation Act (Williamson Act)

Williamson Act Contracts

The California Land Conservation Act (Government Code Section 51200 et seq.) of 1965, commonly known as the Williamson Act, provides a tax incentive for the voluntary enrollment of agricultural and open space lands in contracts between local government and landowners. The contract restricts the land to agricultural and open space uses and compatible uses defined in State law and local ordinances. An agricultural preserve, which is established by local government, defines the boundary of an area within which a city or county will enter into contracts with landowners. Local governments calculate the property tax assessment for lands under contract based on the actual use of the land rather than the potential land value assuming full development.

Williamson Act contracts are effective for periods of 10 years and longer. The contract is automatically renewed each year, maintaining a constant, 10-year contract, unless the landowner or local government files to initiate non-renewal. Should that occur, the Williamson Act would terminate 10 years after the filing of a notice of non-renewal. Only a landowner can petition for a contract cancellation. Tentative contract cancellations can be approved only after a local government makes specific findings and determines the cancellation fee to be paid by the landowner.

Six properties subject to Williamson Act contract are located within the city limits. Of these six properties, three are located on the west side of Main Street between the El Bonita Motel and Grayson Avenue, and the other three are located on Vallejo Street near the western city limits. All six properties are located outside the Urban Limit Line.

The State of California has the following policies regarding public acquisition of and locating public improvements on lands in agricultural preserves and on lands under Williamson Act contracts (Government Code Section 5129051295):

- Avoid locating federal, State, or local public improvements and improvements of public utilities, and the acquisition of land, in agricultural preserves;
- Locate public improvements that are in agricultural preserves on land other than land under Williamson Act contract; and
- Any agency or entity proposing to locate such an improvement, in considering the relative costs of parcels of land and the development of improvements, consider the value to the public of land, particularly prime agricultural land, in an agricultural preserve.

Farmland Security Zone Contracts

Since 1998, another option in the Williamson Act Program has been established with the creation of Farmland Security Zone contracts. A Farmland Security Zone is an area created within an agricultural preserve by a board of supervisors upon the request of a landowner or group of

landowners. Farmland Security Zone contracts offer landowners greater property tax reduction and have a minimum initial term of 20 years. Like Williamson Act contracts, Farmland Security Zone contracts renew annually unless a notice of non-renewal is filed. Potential cancellation of Williamson Act and Farmland Security Zone contracts would be addressed in subsequent project-level documents.

Open Space Subvention

Under the Open Space Subvention Act of 1971, the State has provided annual subvention payments to counties for foregone property tax revenue due to Williamson Act contracts. The Budget Act of 2009 virtually eliminated these payments for the 2009-10 fiscal year. While partial funding was restored for the 2010-11 fiscal year, long-term State support to counties for agricultural land conservation is uncertain. Despite the elimination of most payments from the State, the California Department of Conservation has continued to release status reports of lands under Williamson Act contracts, with the most recent release occurring in 2015.

Solar Use Easements

In 2011, California passed Senate Bill (SB) 618 (Chapter 596, Statutes of 2011) authorizing property owners under Williamson Act or Farmland Security Zone contracts to rescind the contract and simultaneously enter into a solar-use easement. Solar-use easements require the land to be used for solar photovoltaic facilities for a term of 20 years.

LOCAL REGULATIONS

Napa County Measures J and P

In 1990, Measure J was adopted by Napa County voters for purposes of protecting existing agricultural, watershed, and open space lands from premature or unnecessary conversion to non-agricultural or non-open space uses. The Measure ensured that any lands designated as Agriculture, Watershed, and Open Space or Agricultural Resource on the Napa County General Land Use Ma adopted in 1975 would remain so designated until December 1, 2020 unless annexed, redesignated by vote of the people, or redesignated by the Board of Supervisors given findings that the land is unsuitable for agriculture and not likely to be annexed, or to avoid unconstitutional taking of property, or to comply with State statutes concerning siting of solid waste facilities. Measure J's term was extended beyond the original sunset date of 2020 when the voters adopted Measure P in 2008. Measure P is scheduled to sunset in the year 2058. Policies and regulations that implement Measure J and P are included in the Napa County General Plan and the Napa County Zoning Ordinance.

Napa County General Plan

Agricultural Preservation and Land Use Element

The Napa County General Plan includes an Agricultural Preservation and Land Use Element that envisions the county as a place where agriculture is the primary land use and where residential and employment growth is concentrated in the incorporated cities and town and the urbanized areas of the county. The element's seven goals include the following four goals directly related to agricultural preservation:

Goal AG/LU-1: Preserve existing agricultural land uses and plan for agriculture and related activities as the primary land uses in Napa County.

Goal AG/LU-2: Concentrate urban uses in the County's existing cities and town and urbanized areas.

Goal AG/LU-3: Support the economic viability of agriculture, including grape growing, winemaking, other types of agriculture, and supporting industries to ensure the preservation of agricultural lands.

Goal AG/LU-5: With municipalities, other governmental units, and the private sector, plan for commercial, industrial, residential, recreational, and public land uses in locations that are compatible with adjacent uses and agriculture.

Conservation Element

Goal One in the Napa County General Plan Conservation Element is to "minimize conflicts with the natural environments and the agriculture it supports." The goal is accompanied by policies and implementation measures to conserve resources by determining appropriate uses of land according to its natural suitability, and to improve and preserve agricultural land.

Napa County Municipal Code

Chapter 2.94 - Agriculture and Right to Farm

Chapter 2.94 of the Napa County Code includes the County's Agriculture and Right to Farm regulations, intended to preserve and protect its agricultural land. Issues covered in this chapter include:

- **Right-to-Farm Conditions.** This ordinance states that no agricultural activity, operation, or facility shall be considered a nuisance if it has been in operation for more than three years and was not a nuisance at the time it began, if conducted or maintained on agricultural lands for commercial purposes in a manner consistent with proper and accepted customs and standards as established and followed by similar agricultural operations in the same locality.
- **Disclosure Prior to Transfer of Real Property.** This ordinance requires a real estate disclosure upon any transfer of real property that a property adjacent or near to agricultural operations or agricultural lands may be subject to inconveniences or discomforts arising from such operations, including noise, odors, dust, chemicals, smoke, insects, operation of machinery during any 24-hour period, aircraft operation, and storage and disposal of manure.
- **Conditions of Approval of Entitlements for Use.** This ordinance states that no agency of the county shall issue a permit for use of a parcel adjacent to agricultural land until the owners of the property have signed a statement acknowledging that they are aware of the "right to farm" policy and have been provided with a copy of a statement containing the real estate disclosure previously mentioned.

Title 18 Zoning

The Zoning Code regulates development in the unincorporated County in accordance with the County's General Plan. The Zoning Code contains two agricultural zoning districts, the Agricultural Preserve (AP) district and the Agricultural Watershed (AW) district as follows:

- **Agricultural Preserve.** The AP district classification is intended to be applied in the fertile valley and foothill areas of Napa County in which agriculture is and should continue to be the predominant land use, where uses incompatible to agriculture should be precluded and where the development of urban-type uses would be detrimental to the continuance of agriculture and the maintenance of open space which are economic and aesthetic attributes and assets of the county.
- **Agricultural Watershed.** The AW district classification is intended to be applied in those areas of the county where the predominant use is agriculturally oriented, where watershed areas, reservoirs and floodplain tributaries are located, where development would adversely impact on all such uses, and where the protection of agriculture, watersheds and floodplain tributaries from fire, pollution and erosion is essential to the general health, safety and welfare.

Napa County agricultural zoning districts are shown in Figure 3.2-3.

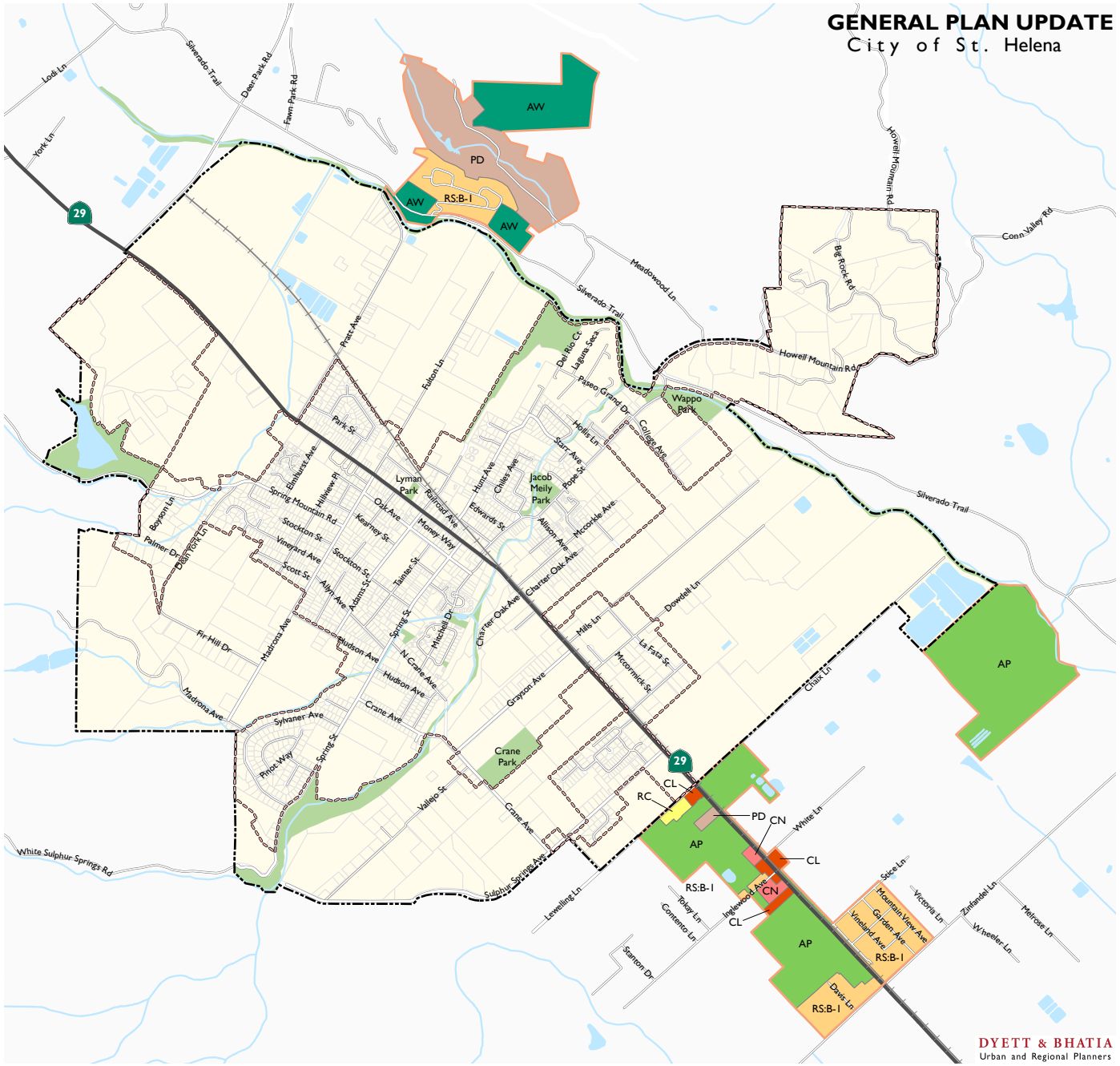
Figure 3.2-3

Napa County Zoning

County Zoning

- RC Residential Country District
- RS:B-1 Residential Single District
- CN Commercial Neighborhood District
- CL Commercial Limited District
- AP Agricultural Preserve District
- AW Agricultural Watershed District
- PD Planned Development District

- City of St. Helena
- Parks and Open Space
- Urban Limit Line
- Study Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;**

Criterion 2: **Conflict with existing zoning for agricultural use, or a Williamson Act contract; or**

Criterion 3: **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.**

METHODOLOGY AND ASSUMPTIONS

Farmland resource acreages were assessed based on the California Department of Conservation FMMP, a biennial report and mapping resource on the conversion of farmland and grazing land. Williamson Act contract lands were identified by geographic information systems (GIS) data from Napa County. Using these sources, the Proposed Plan was analyzed for potential conversion of Important Farmland, conversion of Williamson Act contract lands, and other changes resulting from the Proposed Plan that may result in the conversion of farmland to urban uses.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to agricultural resources in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to agricultural resources in the study areas. Cumulative impacts related to agricultural resources are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES

The following policies and implementing actions of the General Plan Update are relevant to agricultural resource impacts as defined by the significance criteria above:

Land Use and Growth Management Element

- ***LU1.1*** Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building

and stormwater management, while minimizing impacts on sewer, water, energy and natural resources.

- ***LU1.2*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line.

  The Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies. Expansion outside the Urban Limit Line should first be considered in Urban Reserve Areas. Expansion into other areas outside the Urban Limit Line should be considered only when the proposed land use is found to further the goals and long-term objectives of the City and does not result in adverse impacts to adjacent uses in either the urban or rural areas.

- ***LU1.3*** Support agricultural and low-intensity uses beyond the Urban Limit Line.

- ***LU1.4*** In order to minimize and postpone the need for expansion of the Urban Limit Line, encourage infill development within currently developed areas.

- ***LU4.2*** Support the development of industries that are consistent with viticulture and winery support services and similar, compatible uses. Support the role of the City as an agriculturally-based service center for the surrounding area, including Calistoga, Angwin, Deer Park, Meadowood, Madrone Knoll, Rutherford, and the unincorporated area south of St. Helena.

- ***LU5.1*** Discourage conversion of existing agricultural farmland to non-agricultural uses.

- ***LU5.3*** Strictly limit development on properties existing at the time of the adoption of this General Plan that are designated as agricultural land.

- ***LU5.B*** Continue to enforce the City's "right to farm" ordinance that protects the right of agricultural operations in agriculturally-designated areas to continue their operations, even though such practices may generate complaints from nearby established urban uses. Explore the feasibility of a notification system (such as flags, web-based information, etc.) for agricultural spraying so nearby residences can prepare accordingly.

- ***LU5.C*** Explore the feasibility and desirability of implementing permanent agricultural protection for lands within the Urban Limit Line in the form of agricultural preserves.

- ***LU5.F*** Where proposed residential, commercial, or industrial development abuts lands devoted to agricultural use, require the non-agricultural uses to incorporate buffer areas to mitigate potential land use conflicts as a condition of approval for subdivision or use permit. The type and width of buffer areas shall be determined by the City based on the character, intensity, and sensitivity of the abutting land uses. Prepare and adopt guidelines and regulations to assist in the determination of the appropriate type and scope of agricultural buffer areas needed in circumstances that warrant the creation of such buffer areas.

Community Design Element

- ***CD4.2*** Integrate open space, including parks, community gardens, natural areas and agriculture into the community to strengthen the connection to St. Helena's agricultural heritage and provide a sense of openness.
- ***CD4.3*** Support agricultural and low-intensity uses beyond the Urban Limit Line. (Also see the Land Use and Growth Management Element, Topic Area 1)

Open Space and Conservation Element

- ***OS2.1*** Maintain agriculture as the mainstay of the local economy by preserving agriculturally-designated lands as an invaluable and irreplaceable open space resource. (Also see the Land Use and Growth Management Element for additional policies and implementing actions relating to agriculture.)

Climate Change Element

- ***CC4.A*** Establish programs to support and encourage local agriculture, food production, and school and community gardens.
- ***CC4.E*** Support efforts by local growers and restaurants to produce and use locally-grown food and remove associated regulatory hurdles.

Parks and Recreation Element

- ***PR3.2*** Protect sensitive habitat, agricultural land, and open space when planning and maintaining City park lands.

IMPACTS

Impact 3.2-1: Implementation of the Proposed Plan would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (*Significant and Unavoidable*)

Implementation of the Proposed Plan would result in a significant impact if future development occurring in accordance with the Proposed Plan's land use designations and policies would convert Important Farmland to non-agricultural uses. Table 3.2-1 summarizes Important Farmland in the Planning Area as identified by the FMMP. The largest category of farmland classified by the FMMP in the Planning Area is Prime Farmland, which comprises 900 acres or 29 percent of the land in the city identified as agriculture by the FMMP, as well as 1060 acres or 36 percent of land identified as agriculture in the study areas. Additionally, there are nearly 282 acres of Farmland of Statewide Importance, 75 acres of Farmland of Local Importance, and 38 acres of Unique Farmland in the Planning Area, as shown in Figure 3.2-2.

The Proposed Plan includes various land use designations for areas with Prime, Statewide Important, Unique, and Local Important Farmland. Large areas along the periphery of the City of St. Helena would be designated Agriculture, where agricultural and agriculturally-related uses would continue to be allowed. The Proposed Plan also includes urban land use designations in areas of Prime, Statewide Importance, Unique, and Local Important Farmland, which would allow for new development that would result in farmland conversion. As shown in Table 3.2-3, the

acreage with urban land use designations is far less than acreage with agricultural land use designations. The urban land use designations in the Proposed Plan would cover just 58 acres of Prime Farmland, 20 acres of Statewide Importance, 2 acres of Unique Farmland, and nearly 37 acres of Farmland of Local Importance. In total, the Proposed Plan would allow for development on 118 acres of Important Farmland throughout the City of St. Helena.

Table 3.2-3: Prime, Statewide Important, and Unique Farmland in the Planning Area with Urban and Agricultural Land Use Designations

	Acres with an Urban Land Use Designation	*Acres with the Agricultural Land Use Designation*
Prime Farmland	58.74	1,011.04
Farmland of Statewide Importance	20.31	261.68
Unique Farmland	2.52	35.60
Farmland of Local Importance	36.96	38.27
Total	**118.53**	**1,346.59**

Sources: Farmland Mapping and Classification Program (FMMP), 2016; Proposed General Plan Land Use

The Proposed Plan policies and implementing actions provide a framework to permit existing agricultural uses to continue operating and ensure that important farmland remains as farming or other related agricultural support uses for as long as such use is financially feasible. Proposed land use policies that would reduce impacts to Important Farmland, including LU1.4, which encourages infill development within currently developed areas in order to minimize the need to expand the Urban Limit Line; policies LU1.3, LU5.1, CD4.3, OS2.1, and PR3.2, which provide support for agricultural uses within and adjacent to the city. Additionally, implementing actions LU5.B and PS2.H call for continued enforcement of "right-to-farm" provisions. While implementation of the proposed plan would reduce potential impacts to Important Farmland, the potential loss of 118 acres of Important Farmland in the city would be significant.

The Proposed Plan does not include land use designations or policies for the unincorporated study areas and would therefore have no impact on the conversion of Important Farmland in those areas.

Mitigation Measures

Implementation of the Proposed Plan could result in the loss of 118 acres of Prime Farmland, Farmland of Statewide and Local Importance, and Unique Farmland. Conversion of agricultural land to urban use is not directly mitigable, aside from preventing development altogether, as agricultural land is a finite and irreplaceable resource. Beyond limiting the amount of total growth permitted, there are no feasible mitigation measures for agricultural land conversion that would also fulfill the objectives of and implement the Proposed Plan. The impact would remain significant and unavoidable.

Impact 3.2-2: Implementation of the Proposed Plan would not conflict with existing zoning for agricultural use or a Williamson Act contract (*Less Than Significant*)

The Proposed Plan would not conflict with existing zoning for agricultural land uses or Williamson Act contracts. As discussed below, the Proposed Plan would not conflict with Napa County's zoning for agricultural uses, and would designate all areas within the city that are subject to Williamson Act contracts as Agriculture. Therefore, potential for impacts due to conflict with Williamson Act contracts or existing zoning for agricultural use is deemed would be less than significant.

Zoning for Agricultural Use

The Proposed Plan does not designate any land uses for unincorporated areas, maintaining consistency with the County's zoning districts. Within the City of St. Helena, if the Proposed Plan were to be adopted, the City's Zoning Ordinance would be revised in order to ensure consistency with the Proposed Plan. Therefore, there would be no impact related to conflicts with existing agricultural zoning.

Williamson Act Contracts

There are 171 acres of land under Williamson Act contracts in the Planning Area. Within the City of St. Helena, the Proposed Plan would designate all 55 acres of Williamson Act land as Agriculture, which is intended for primarily agriculture and winery uses with restricted single-family residential and is thus consistent with the continuation of agricultural operations on those properties. Impacts due to conflicts with Williamson Act lands within the city from implementation of the Proposed Plan would therefore be less than significant. The Proposed Plan does not include land use designations or policies for the unincorporated study areas, which are outside of the City's jurisdiction. There would be no impact from the Proposed Plan due to conflicts with Williamson Act lands in the study areas.

Mitigation Measures

None required.

Impact 3.2-3: Implementation of the Proposed Plan would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use (*Less than Significant*)

Urban development can result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Such indirect impacts can include the division of large tracts of continuous agricultural land into smaller, less agriculturally viable tracts; the presence of incompatible uses adjacent to existing agricultural operations that could lead to the restriction of chemical use and/or complaints regarding noise, dust, and odors; increases in land values and taxes that exert pressure on agricultural landowners to convert to urban uses; and loss of agricultural support infrastructure, such as processing facilities. In addition, urban growth may increasingly compete with agriculture for the use of water resources, and may conflict with operational use of area roadways.

The Proposed Plan includes measures to ensure that most of the city's agricultural land remains in agricultural use, including a proposed land use pattern that maintains carries most of the existing General Plan's agricultural land use designations forward, covering the majority of existing agricultural land uses; an ULL to prevent non-agricultural development from taking place outside of a predetermined area covering existing urban uses; and policies to support long-term agricultural operations.

Any existing farmland located in the proposed Agriculture designation or outside of the proposed ULL would be protected from conversion pressures by limitations on allowable land uses and proposed policies protecting agricultural use outside of the ULL (policies LU1.1, LU1.2, LU1.3, LU1.4, and LU5.3). While the Proposed Plan does not itself include individual projects that would convert existing farmland, existing farmland located in non-agricultural designations or within the ULL could face development pressures as new projects are proposed on or adjacent to the farmland. Additionally, the Proposed Plan would redesignate one site from Agriculture to Central Business and expand the ULL to include this site (see Change Area 1 in Figure 2.3-3).

Policies included in the Proposed Plan would reduce impacts related to indirect conversion of farmland, including Policy LU5.1, which discourages conversion of existing agricultural farmland; and policies and implementing actions to promote right-to-farm (LU5.B, PS2.4, and PS2.1); explore the potential to protect agricultural land within the ULL (LU5.C), reduce the potential for land use conflicts that could threaten agricultural uses (LU5.F), and foster a community character and local economy tied to agricultural practices (LU4.2, CD4.2, OS2.1, CC4.A, and CC4.E). Additionally, by focusing future development within the ULL, the Proposed Plan reduces the potential for sprawling development that could fragment the larger areas of contiguous agricultural land currently existing outside of the ULL, increasing the long-term viability of agricultural uses in those areas.

While the Proposed Plan does not include land use designations or policies and actions applicable to unincorporated areas and would thus not directly convert agricultural lands to non-agricultural uses, intensification of urban development and conversion of farmland within the city could indirectly increase development pressures in surrounding unincorporated areas, given their access to the city's jobs, services, and other amenities. Development in the unincorporated county is subject to the County General Plan and measures J and P, as described in the Regulatory Setting. To the extent these lands are designated Agricultural Resource and Agriculture, Watershed, and Open Space, it would require a vote of the people or Board of Supervisors to redesignate these areas for more intense development. The Proposed Plan's focus on infill development is also consistent with the County General Plan goal of concentrating development in urbanized areas in order to preserve agricultural uses elsewhere in the county. Proposed Plan land use designations adjacent to unincorporated areas is mostly agriculture, allowing for a transition from the more urbanized core of the city to primarily agricultural uses in the periphery and in the county that would reduce the potential for land use conflicts that could threaten agricultural uses. The Napa County Municipal Code's right-to-farm, disclosure, and conditions of approval standards would also ensure that land use conflicts that could lead to agricultural conversion would be kept to a minimum.

Thus, with implementation of the Proposed Plan and adherence to Napa County's existing policies and regulations, the impact would be less than significant.

Mitigation Measures

None required.

3.3 Air Quality

This section summarizes information on the air quality environment in St. Helena and provides an evaluation of the air quality-related effects of the Proposed Plan. The analysis considers existing and projected air quality along major roadways, in addition to other air pollutant sources in the Planning Area. Mitigation measures are recommended to ensure that emissions are reduced to the maximum extent feasible. This section focuses on criteria air pollutants and toxic air contaminants (TACs); greenhouse gases (GHGs) are evaluated in Section 3.6: Energy, Climate Change, and Greenhouse Gas Emissions. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

The City of St. Helena is located in the northern portion of Napa County, part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa counties, and portions of southwestern Solano and southern Sonoma counties. The SFBAAB is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The climate is characterized by warm dry summers and mild moist winters. The summer average maximum temperatures are in the 80s to low 90s, while winter average maximum temperatures are in the high 50s and low 60s, with minimum temperatures in the high to mid 30s.

Due to the climate and terrain of the Napa Valley, the potential for air pollution could be high if there were sufficient sources of air contaminants nearby. The summer and fall prevailing winds can transport ozone precursors northward from the San Pablo Bay and Carquinez Strait area into the Napa Valley, which effectively traps and concentrates pollutants when stable conditions are present. In addition, pollutants may be recirculated by the local upslope and downslope flows created by the surrounding mountains, contributing to buildup of air pollution within the valley. In the late fall and winter, particulate matter from motor vehicles, agriculture, and wood burning in fireplaces and stoves can build up in the valley because of the high frequency of light winds and stable atmospheric conditions.

Pollutants of Concern

Criteria Air Pollutants

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM) are commonly used as indicators of ambient air quality conditions. These pollutants are known as "criteria pollutants" and are regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) through national and California ambient air quality standards (NAAQS and CAAQS), respectively. Ozone and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO_2, and lead are considered local pollutants that tend to accumulate in the air locally. PM_{10} and $PM_{2.5}$ are both regional and local pollutants.

The primary criteria pollutants of concern in the Planning Area are ozone (including its precursors, nitrogen oxides [NO_X] and reactive organic gases [ROG][1]), CO, and PM. Principal characteristics surrounding these pollutants are discussed below, on the U.S. Environmental Protection Agency's (EPA) website for Criteria Air Pollutants and the CARB Glossary of Air Pollution Terms (U.S. Environmental Protection Agency, 2018). In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is instead formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

Reactive Organic Gases. ROGs (also known as Volatile Organic Compounds, or VOCs) are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Negative effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants such as ozone.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when ROGs and NO_x react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROGs and NO_x, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in

[1] ROG is synonymous with volatile organic compounds (VOC), which is commonly used to describe compound limits for architectural coatings such as paint.

the SFBAAB can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. Generally, automobile exhaust accounts for a majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and ROG. Inhalable or coarse particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Toxic Air Contaminants.

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos.

TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC. CARB has identified diesel engine exhaust particulate matter as the predominant TAC in California. Diesel particulate matter (DPM) is emitted into the air by diesel-powered mobile vehicles, including heavy-duty diesel trucks, construction equipment, and passenger vehicles. Certain ROGs may also be designated as TACs.

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, CARB has consistently found no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. The California Office of Environmental Health Hazard Assessment (OEHHA) identifies TACs and studies their toxicity.

Local Air Quality

Air Pollutants and Contaminants of Concern in the Bay Area

State and federal ambient air quality standards cover a wide variety of pollutants. However, only a few of these pollutants are problems in the Bay Area, either due to the strength of the emission or the climate of the region. Problem air pollutants in St. Helena and the Bay Area include O_3, PM_{10}, $PM_{2.5}$, and TACs. As shown in Table 3.3-1, the Bay Area is currently classified as a federal and state nonattainment area for ozone and $PM_{2.5}$ and a state nonattainment area for PM_{10}.

Ozone

Ozone is not a pollutant that adversely affects St. Helena, but emissions from motor vehicle use in the area may contribute to elevated ozone levels in the Napa Valley and high ozone levels in other parts of the Bay Area. Motor vehicles are the largest source of ozone precursor emissions (i.e., nitrogen oxides and reactive organic gases) in the Bay Area. The Bay Area is currently classified as a federal and state nonattainment area for ozone.

Particulate Matter

Although particulates are found naturally in the air, most particulate matter found in the Planning Area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most $PM_{2.5}$ is comprised of combustion products such as smoke or formed in the atmosphere from regional emissions of nitrogen oxides. There are many sources of PM_{10} emissions, including combustion, industrial processes, grading and construction, and motor vehicles. The greatest quantity of PM_{10} emissions associated with motor vehicle uses is generated by re-suspended road dust. Wood burning in fireplaces and stoves is another significant source of particulate matter, primarily $PM_{2.5}$, in the City of St. Helena.

Toxic Air Contaminants (TACs)

TACs are another group of pollutants of concern in the Bay Area. Common sources of TACs include industrial processes, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Diesel particulate matter from exhaust has been identified as a TAC. Mobile sources, such as trucks, buses, and construction equipment are by far the largest source of diesel emissions. DPM is the most prevalent TAC in the state, due to the toxicity of DPM and the common sources that include trucks and construction equipment. There are very few stationary sources of TAC emissions in Napa County, however, due to the general land uses present in the County, DPM from on-road transportation emissions and off-road emissions from the agricultural sector is a concern within the Planning Area.

Table 3.3-1: Bay Area Air Quality Attainment Status (2017)

Pollutant	*Federal Standards Classification*[1]	*State Standards Classification*[2]
Ozone - One Hour	No federal standard[3]	Nonattainment
Ozone - Eight Hour	Nonattainment	Nonattainment
PM 10	Unclassified	Nonattainment
PM 2.5	Unclassified/Attainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment[4]	Attainment
Lead (Particulate)	Unclassified[5]	Attainment
Hydrogen Sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	No information available

Notes:

1. See 40 CFR Part 81.
2. See CCR Title 17 Sections 60200-60210.
3. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
4. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
5. ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.

Source: Bay Area Air Quality Management District, 2017, available at http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status#eight

Air Quality Monitoring

Since 1972, the Bay Area Air Quality Management District (BAAQMD) has operated a multi-pollutant monitoring site on Jefferson Street in Napa, which allows the analysis of trends in air quality. Table 3.3-2 shows the Air Quality Monitoring Data from the Jefferson Street monitoring site, the closest monitoring site to the Planning Area, from 2013 to 2017. Air quality in and around

St. Helena is generally good due to the rural nature of the area and lack of upwind air pollution sources.

The most recent set of monitoring data from the Jefferson Street site indicates that ozone levels in Napa did not exceed federal standards in 2017 but did exceed state standards one day per year. During this same period, 1-hour ozone levels basin-wide exceeded state standards on five days per year and federal standards on two days per year. During this same period, 8-hour ozone levels basin-wide exceeded state standards on six days per year and federal standards on two to six days per year, depending on the exact standard used.

The Napa monitoring station only measured PM_{10} until 2013 when it also began monitoring $PM_{2.5}$. In 2017, the Napa station measured 13 days of levels above the $PM_{2.5}$ federal standard. From 2014 to 2016,[2] the Napa station measured 16 days above the PM_{10} federal standards and 19 days had levels above the state PM_{10} standards. In the Bay Area, $PM_{2.5}$ standards were exceeded on 13 measurement days per year (2017) and PM_{10} standards were exceeded on 19 to 22 measurement days per year (2016).

Measured levels of other criteria air pollutants such as nitrogen dioxide and carbon monoxide are well below federal and State standards in Napa County. Some pollutants, such as lead and sulfur dioxide, are not measured in or near Napa because there is no evidence that they would be at levels that would warrant concern (i.e., lack of emission sources). Current levels at the Napa monitoring station are about one-fourth of the most stringent federal and state standards. Carbon monoxide concentrations are expected to decrease further in the future as newer and cleaner vehicles replace older vehicles on the roadway.

Existing Sources of Air Pollution

Besides various small permitted sources (emergency generators and agricultural burns), there are no substantial sources of air pollution or toxic air contaminants in St. Helena. The primary source of air pollution within the City of St. Helena is vehicle traffic, particularly on State Route 29 (SR-29). BAAQMD lists stationary sources in St. Helena that include fueling stations, a dry cleaner, two auto body shops with spray painting operations, and some standby emergency and diesel generators. A review of the permit data for these sources shows that they would have very localized impacts.

[2] Data for 2017 PM_{10} levels was insufficient or not available as of August 2018.

Table 3.3-2: Jefferson Street Air Quality Data Summary (2013–2017)

	Monitoring Data by Year				
Pollutant	*2013*	*2014*	*2015*	*2016*	*2017*
Ozone, O3					
Maximum 1-hour concentration (ppm)	0.089	0.074	0.079	0.080	0.098
Maximum 8-hour concentration (ppm)	0.076	0.067	0.069	0.068	0.084
Number of days standard exceeded	0	0	0	0	0
CAAQS 1-hour (>0.09 ppm)	0	0	0	0	1
CAAQS 8-hour (>0.070 ppm)	2	0	0	0	2
NAAQS 8-hour (>0.070 ppm)	2	0	0	0	2
Fine Particulate Matter, $PM_{2.5}$					
National maximum 24-hour concentration ($\mu g/m^3$)	35.8	29.9	38.2	24.3	199.1
State maximum 24-hour concentration ($\mu g/m^3$)	35.8	29.9	38.2	24.3	199.1
National annual average concentration ($\mu g/m^3$)	11.7	11.9	10.6	8.5	13.7
State annual average concentration ($\mu g/m^3$)	11.7	11.9	10.6	8.4	13.1
Measured number of days standard exceeded	1.1	0	1.0	0	13.3
Suspended Particulate Matter, PM_{10}					
National maximum 24-hour concentration ($\mu g/m^3$)	37.6	37.7	51.5	32.2	No Data
State maximum 24-hour concentration ($\mu g/m^3$)	39.6	39.3	50.0	33.0	No Data
National annual average concentration ($\mu g/m^3$)	18.2	15.4	17.5	13.2	No Data
State annual average concentration ($\mu g/m^3$)	18.7	15.8	18.7	No Data	No Data
Measured number of days standard exceeded	0	0	0	No Data	No Data

Notes:

1. All data were measured at the Napa-Jefferson Avenue station.
2. ppm = parts per million; and $\mu g/m^3$ = micrograms per cubic meter.

Sources: CARB, Air Quality Summary, https://www.arb.ca.gov/adam/select8/sc8start.php; Dyett & Bhatia, 2018

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and the air district. Common sources of odors within St. Helena come from farming operations, wine production (crushing and fermenting grapes), restaurants, auto body shops, and the waste treatment facility in the southeast portion of the city.

Sensitive Populations and Receptors

Populations most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Thus, there are numerous sensitive receptors in the Planning Area.

REGULATORY SETTING

Federal Air Quality Standards

Federal Clean Air Act

The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CAA). At the federal level, the U.S. EPA administers the CAA.

Under the CAA, the U.S. EPA has established concentration-based NAAQS for criteria air pollutants (see Table 3.3-3) and has identified hazardous air pollutants, for which emissions standards are developed. The NAAQS are periodically reviewed as new health information is made available.

State Air Quality Standards

California Clean Air Act

The California Clean Air Act (CCAA) is administered by CARB at the state level and by the Air Quality Management Districts at the regional and local levels. BAAQMD regulates air quality at the regional level for the nine-county Bay Area, including the City of St. Helena and Napa County.

CAAQS are established by CARB for criteria air pollutants and also address some industry-specific pollutants that are not found to be an issue in the Napa Valley (see Table 3.3-3). The CAAQS are established based on health effects and are also periodically reviewed and updated, if necessary, as new information is made available. CARB also identifies TACs, which are similar to hazardous air pollutants identified by the U.S. EPA.

Table 3.3-3: Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards*[1]		*Federal Standards*[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
Ozone[8] (O_3)	1-Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[9]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24-Hour	–	–	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry	35 ppm (40 mg/m³)	–	Non-Dispersive Infrared Photometry
	8-Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	–	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen Dioxide (NO_2)[10]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	–	Gas Phase Chemilumi-nescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m³)	

Table 3.3-3: Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards*[1]		*Federal Standards*[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[9]	–	
Lead (Pb)[12, 13]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average[9]	–		0.15 µg/m^3		
Visibility-Reducing Particles[14]	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No Federal Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Notes:

ppm= parts per million by volume µg/m^3 = micrograms per cubic meter mg/m^3= milligrams per cubic meter

1. California standards for O_3, carbon monoxide (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, and suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr.

Table 3.3-3: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]

Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.
8. On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.
9. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standards to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm
12. CARB has identified Pb and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for Pb was revised on October 15, 2008, to a rolling 3-month average. The 1978 Pb standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB, 2016

CARB Air Quality and Land Use Handbook: A Community Health Perspective

In 2005, CARB released the final version of the Air Quality and Land Use Handbook, which is intended to encourage local land use agencies to consider the risks from air pollution before making decisions that approve the siting of new sensitive receptors, such as homes or day care centers, near sources of air pollution. Unlike industrial or stationary sources of air pollution, siting of new sensitive receptors does not require air quality permits but could result in adverse air quality issues. The primary purpose of the handbook is to highlight the potential health impacts associated with close proximity to common air pollution sources and to have those issues considered in the planning process. CARB makes recommendations regarding the distance of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing stations.

CARB acknowledges that land use agencies have to balance other siting considerations, such as housing and transportation needs, economic development priorities, and other quality-of-life issues. In addition, siting some sensitive receptors, such as residences, near transportation facilities, employment centers, and services would reduce overall emissions from a community.

These "advisory" siting recommendations (or buffer distances), summarized in Table 3.3-4, are based primarily on modeling information and may not be entirely reflective of conditions in the Planning Area. The siting of new sensitive land uses within the identified buffer distances may be possible, but only after site-specific studies are conducted to identify the potential health risks.

Table 3.3-4: CARB Recommendations on Siting New Sensitive Uses Land Uses

Source Category[1]	*Advisory Recommendations*
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perc dry cleaning operations.

Table 3.3-4: CARB Recommendations on Siting New Sensitive Uses Land Uses

Source Category[1]	*Advisory Recommendations*
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Notes:
1. Additional Source Categories can be found on Table 1-1 of the Handbook.

Source: CARB, 2005

CARB Revised Proposed 2016 State Strategy for the State Implementation Plan

On March 7, 2017, CARB released the Revised Proposed 2016 State Strategy for the State Implementation Plan (SIP), describing the proposed commitment to achieve the reductions necessary from mobile sources, fuels, and consumer products to meet federal ozone and $PM_{2.5}$ standards over the next 15 years. The State SIP Strategy proposes a suite of regulatory and incentive programs, referred to as State SIP measures, which, in combination with local actions, are designed to achieve the required emission reductions to meet federal air quality standards. The Revised Proposed 2016 State Strategy for the SIP was certified by CARB on March 23, 2017.

CalEPA / CARB Technical Advisory

The California Environmental Protection Agency (CalEPA) and CARB released a Technical Advisory titled, "Strategies to Reduce Air Pollution – Exposure Near High-Volume Roadways" in April 2017. The advisory is a technical supplement to CARB's Air Quality and Land Use Handbook: A Community Health Perspective. The Technical Advisory provides planners and other stakeholders involved in land use planning and decision-making with information on scientifically-based strategies to reduce exposure to traffic emissions near high-volume roadways in order to protect public health and promote equity and environmental justice. The Technical Advisory is intended to provide "guidance" for planners weighing options for reducing exposure to traffic emissions and is not intended as guidance for any specific project, nor does it create any presumption regarding the feasibility of mitigation measures for the purposes of compliance with CEQA.

The Technical Advisory identifies strategies to reduce air pollution exposure near high-volume roadways, such as: speed reduction mechanisms; traffic signal management; speed limit reductions on high-speed roadways (>55 mph); design that promotes air flow and pollutant dispersion along street corridors; solid barriers, such as sound walls; vegetation for pollutant dispersion; and indoor high efficiency filtration.

CARB's Mobile Source Strategy 15 contains a suite of measures that are being considered to simultaneously meet air quality standards, achieve GHG emission reduction targets, reduce petroleum consumption, and decrease health risk from transportation emissions over the next 15 years. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in greenhouse gas emissions and a 50 percent reduction in the consumption of petroleum-based fuels.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act, or Assembly Bill 2588 (AB 2588), was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Building Energy Efficiency Standards (Title 24) and CALGreen

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 California Code of Regulations [CCR], Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption.

In 2007, Governor Schwarzenegger directed the California Building Standards Commission (CBSC) to work with State agencies on the adoption of green building standards for residential, commercial, and public building construction for the 2010 code adoption process. A voluntary version of the California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11 in 2009. The 2010 version of CalGreen took effect January 1, 2011, and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial and low-rise residential buildings, state-owned buildings, schools, and hospitals.

The most recent CalGreen code was adopted in 2016 and became effective in 2017. CalGreen contains voluntary Tier 1 and Tier 2 levels, which are designed to exceed energy efficiency and other standards by 15 percent or 30 percent, respectively.

The 2016 edition of CalGreen has been amended and adopted as Chapter 15.53 of the St. Helena Municipal Code. Notably, CalGreen sets VOC content limits for architectural coatings, sealants, adhesives, and formaldehyde for residential and non-residential buildings and construction projects.

The California Building Code (CBC) has been amended and adopted as Title 15 of the St. Helena Municipal Code, which regulates all building and construction projects within the city.

Local Regulations

Bay Area Air Quality Management District

Air quality districts have local responsibility in overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and State air quality laws and for ensuring that NAAQS and CAAQS are met.

The air quality study area falls under the jurisdiction of BAAQMD. Under the CCAA, BAAQMD is required to develop an air quality plan for nonattainment criteria pollutants in the air district. The Bay Area 2017 Clean Air Plan, adopted by BAAQMD on April 19, 2017, provides an integrated control strategy to reduce ozone, PM, TACs, and greenhouse gas (GHG) emissions in a manner

that is consistent with federal and State air quality programs and regulations. BAAQMD also adopted a redesignation plan for CO in 1994. The redesignation plan includes strategies to ensure the continuing attainment of NAAQS for CO in Air Basin.

Future development under the Proposed Plan may be subject to one or more of the following district rules, depending on the specific components of the individual project. These rules have been adopted by BAAQMD to reduce emissions throughout the area.

- **Regulation 2, Rule 2 (New Source Review).** This regulation contains requirements for Best Available Control Technology and emission offsets.
- **Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants).** This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- **Regulation 6, Rule 1 (Particulate Matter).** This regulation restricts emissions of PM darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.
- **Regulation 6, Rule 3 (Wood Burning Devices).** This regulation restricts wood burning devices in all new development constructed after November 1, 2016.
- **Regulation 7 (Odorous Substances).** This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **Regulation 8 (Organic Compounds).** This regulation limits the quantity of organic compounds (e.g., ROG) from various applications and process, including in architectural coatings and commercial cooking equipment and at gasoline dispensing facilities. The regulation outlines 53 rules based on the source type.
- **Regulation 9 (Inorganic Gaseous Pollutants).** This regulation limits emissions of inorganic gaseous pollutants (e.g., NO_X) generated by various sources, including natural gas-fired boilers and stationary internal combustion engines. The regulation outlines 14 rules based on the source type.
- **Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing).** This rule controls emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establishes appropriate waste disposal procedures.

Additionally, BAAQMD's CEQA Guidelines document provides guidance to assist lead agencies in determining the level of significance of project-related emissions, and contain thresholds of significance for ozone, CO, PM_{10}, $PM_{2.5}$, TACs, and odors. More information these significance thresholds can be found in the "Methodology and Assumptions" subsection below.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: Conflict with or obstruct implementation of the applicable air quality plan;

Criterion 2: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation;**

Criterion 3: **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);**

Criterion 4: **Expose sensitive receptors to substantial pollutant concentrations; or**

Criterion 5: **Create objectionable odors affecting a substantial number of people.**

METHODOLOGY AND ASSUMPTIONS

Air Quality Modeling

This analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the Proposed Plan. Air quality impacts are regional, and thus cumulative, in nature, as no single project anticipated under the Proposed Plan would by itself generate enough emissions to cause the SFBAAB to be designated a nonattainment area but could contribute to overall emissions in the basin. Air pollutant emissions associated with the Proposed Plan would result from operation of future land uses that would be developed in the City of St. Helena and from traffic volumes generated by these new developments. These emissions would not occur at once but over the course of the Proposed Plan's buildout period. Construction activities would also generate air pollutant emissions within the City of St. Helena and on roadways resulting from construction-related traffic.

For this analysis, impacts of the Proposed Plan's criteria pollutant emissions on air quality from construction were assessed qualitatively, while emissions from the Proposed Plan's operations were assessed quantitatively using standard and accepted software tools, techniques, and emission factors. The primary assumptions and key methods used to quantify emissions and estimate potential impacts are described below. Model inputs and calculation files are provided in Appendix E.

The impact analysis below provides a program-level overview of construction and operational emissions that could occur with buildout of the Proposed Plan. The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to air quality in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), and the Proposed Plan does not encourage any new development within the study areas, air pollutant emissions are shown for the City of St. Helena and the study areas separately. Any growth in the study areas between 2018 and 2040 buildout is the result of continued growth within unincorporated Napa County and not directly as the result of change areas or land use designation modifications identified within the Proposed Plan. Implementation of the Proposed Plan would not result in direct impacts related to air quality in the study areas, but could

result in indirect impacts as air pollution is, by nature, a cumulative impact and increased emissions from the Proposed Plan could affect air quality in surrounding areas. Similarly, while Proposed Plan policies and actions would not apply in the study areas, a decrease in air pollution in the City of St. Helena could have positive impacts on air quality throughout the Planning Area.

Construction Emissions

Land uses that could be developed under the Proposed Plan would generate construction-related emissions from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, dust from land clearing, and application of architectural coatings. However, the specific size, location, and construction techniques and scheduling that would be utilized for each individual development project occurring within the City of St. Helena from implementation of the Proposed Plan is not currently known. With an anticipated buildout year of 2040, development of the various land uses associated with the Proposed Plan would occur over an extended period of time and would depend on factors such as local economic conditions, market demand, and other financing considerations. As such, without specific project-level details it is not possible to develop a refined construction inventory.[3] Consequently, the determination of construction air quality impacts for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Thus, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the Proposed Plan is conducted qualitatively in this EIR. The analysis discusses the potential for future individual developments in the City of St. Helena to generate construction emissions that exceed BAAQMD's project-level thresholds and, where necessary, mitigation measures that are available to reduce those emissions.

Operational Emissions

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were quantified for the Proposed Plan using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Mass mobile-source emissions were modeled based on the daily vehicle trips and vehicle miles traveled (VMT) data provided by Fehr & Peers, the Proposed Plan's traffic engineers, for the existing (2018) and Proposed Plan buildout year (2040) conditions.

Area and energy (natural gas) emissions were modeled according to the amount (i.e., commercial/industrial square footage or number of dwelling units) and type of land uses proposed. Area sources account for direct sources of air emissions, and includes those generated from hearth (e.g., natural gas fireplaces) usage, consumer product use, landscape maintenance equipment, and architectural coatings used for the repainting of buildings. Energy sources account for emissions associated with the combustion of natural gas for building heating and hot water. Emissions were quantified for existing (2018) and Proposed Plan buildout (2040) conditions based on current and anticipated land uses. CalEEMod defaults were assumed, with the exception of wood burning stoves and fireplaces, which were assumed to be prohibited for all new development under the

[3] Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

Proposed Plan per BAAQMD Regulation 6, Rule 3. Land use assumptions and CalEEMod output files are in Appendix E.

To evaluate the Proposed Plan's potential operational air quality impacts, the increase in criteria pollutant emissions resulting from its implementation in the City of St. Helena over existing conditions is assessed against BAAQMD's project-level thresholds (see "Establishing Thresholds" section below for more information).

Establishing Thresholds

Supplemental Criteria Pollutant Guidance

BAAQMD has provided guidance to assist lead agencies in determining the significance of criteria pollutant emissions. This analysis evaluates the impacts of the Proposed Plan using a two-tiered approach that considers both project- and plan-level guidance recommended by BAAQMD in their CEQA Guidelines (2017).

First, this analysis considers whether the Proposed Plan would conflict with the most recent air quality plan (2017 Clean Air Plan), consistent with BAAQMD Guidance (2017). The analysis evaluates whether the Proposed Plan supports the primary goals of the 2017 Clean Air Plan, include applicable control measures, and whether it would disrupt or hinder implementation of any 2017 Clean Air Plan control measure.

Second, criteria pollutant emissions, calculated using the methodology described above, are compared to BAAQMD's project-level thresholds. The ROG, NO_X, and PM thresholds are based on emissions levels identified under the New Source Review (NSR) program. The NSR program is a permitting program that was established by Congress as part of the CAA Amendments to ensure that air quality is not significantly degraded by new sources of emissions. The NSR program requires stationary sources receive permits before starting construction or use of the equipment. By permitting large stationary sources, the NSR program assures that new emissions would not slow regional progress toward attaining NAAQS. BAAQMD has concluded that the stationary pollutants described under the NSR program are equally significant to those pollutants generated with land use projects. BAAQMD's thresholds identified in Table 3.3-5 were set as the total emission thresholds associated within the NSR program to help attain NAAQS.

According to BAAQMD, projects with emissions in excess of the thresholds shown in Table 3.3-5 would be expected to have a significant impact on air quality because an exceedance of the thresholds is anticipated to contribute to CAAQS and NAAQS violations, and should be mitigated where feasible.

Table 3.3-5. Project-Level Emission Thresholds

Analysis	*BAAQMD*
Regional Criteria Pollutants (Construction)	ROG: 54 lbs/day NO_X: 54 lbs/day PM10: 82 lbs/day (exhaust only) PM2.5: 54 lbs/day (exhaust only)
Regional Criteria Pollutants (Operations)	ROG: Same as construction NO_X: Same as construction PM10: 82 lbs/day PM2.5: 54 lbs/day

Notes:
ROG = reactive organic gases
Lbs = pounds
NO_X = nitrogen oxide
PM10 = particulate matter that is 10 microns in diameter and smaller
PM2.5 = particulate matter that is 2.5 microns in diameter and smaller

Source: Bay Area Air Quality Management District, 2017

It should be noted that the BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project, and thus do not lend well to an evaluation of emissions from a land use plan being evaluated at a programmatic level. Large-scale land use plans, including general plans, that consist of numerous individual projects will, by their nature, produce more criteria pollutants than single projects, even if the plans include efficiency measures to reduce future emissions. Use of the project-level thresholds to evaluate land use plans may therefore unfairly penalize the plans, yielding a significant and unavoidable conclusion simply due to scale. However, because a comparison to the project-level thresholds is informative to the analysis of the Proposed Plan's impacts on air quality, this analysis accounts for both project-level thresholds and overall consistency with the 2017 Clean Air Plan.

Although BAAQMD's CEQA Guidelines are intended to help lead agencies navigate through the CEQA process, BAAQMD indicates that the guidelines for implementation of its significance thresholds are advisory only and should be followed by local governments at their own discretion. Nonetheless, BAAQMD's proposed thresholds are supported by substantial evidence and are well-grounded in air quality regulations, scientific evidence, and scientific reasoning concerning air quality and GHG emissions. BAAQMD's 2010 Justification Report, found in Appendix D of BAAQMD's May 2017 CEQA Guidelines, explains the agency's reasoning and provides substantial evidence for developing and adopting their thresholds.

Supplemental Health Risk Guidance

As discussed in the Environmental Setting section above, all criteria pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). Negative health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_X) affect air quality on a regional scale. Health effects related to ozone, therefore, are the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, minor increases in regional air pollution from project-generated ROG and NO_X would have nominal or negligible impacts on human health.

Because localized pollutants generated by a project that could result from implementation of the Proposed Plan can directly affect adjacent sensitive receptors, the analysis of impacts on human health focuses only on those localized pollutants with the greatest potential to result in a significant, material impact on human health. This analysis is consistent with the current state-of-practice and published guidance by BAAQMD (2017), California Air Pollution Control Officers Association (CAPCOA) (2009), Office of Environmental Health Hazard Assessment (OEHHA) (2015), and CARB (2000). The pollutants of concern include (1) TACs and (2) localized CO. BAAQMD guidance and thresholds for each pollutant are identified below. A discussion of potential health effects from regional criteria pollutants is included under Impact 3.3-4 for informational purposes.

Toxic Air Contaminants

Potential health risks from development supported by the Proposed Plan are assessed based on BAAQMD's plan-level guidance. BAAQMD (2017) requires that overlay zones be established around all existing and planned sources of TACs, including stationary sources, high-traffic roadways, and railways. The overlay zones must identify goals, policies, and objectives to minimize potential TAC impacts to existing and future receptors.

BAAQMD has established project-level thresholds for cancer and non-cancer health hazards from TACs.[4] The health risk thresholds defined by BAAQMD are the probability of contracting cancer for the maximally exposed individual (MEI) exceeding 10.0 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a hazard index (HI) greater than 1.0 for the MEI. BAAQMD has also adopted an incremental concentration-based significance threshold to evaluate receptor exposure to $PM_{2.5}$ exhaust, where a "substantial" contribution is defined as $PM_{2.5}$ exhaust (diesel and gasoline) concentrations exceeding 0.3 $\mu g/m^3$.

[4] DPM is the primary TAC of concern for mobile sources; of all controlled TACs, emissions of DPM are estimated to be responsible for approximately 70 percent of the total ambient TAC risk (California Air Resources Board 2000). Given the risks associated with DPM, tools and factors for evaluating human health impacts from project-generated DPM have been developed and are readily available. Conversely, tools and techniques for assessing project-specific health outcomes as a result of exposure to other TACs (e.g., benzene) remain limited. These limitations impede the ability to evaluate and precisely quantify potential public health risks posed by TAC exposure.

With respect to asbestos, which is a TAC, there are no quantitative thresholds related to receptor exposure. However, BAAQMD requires the demolition or renovation of asbestos containing building materials to comply with the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations.

Localized Carbon Monoxide

BAAQMD considers localized CO emissions to result in significant impacts if concentrations exceed CAAQS (Table 3.3-4). The air district has adopted screening criteria that provide a conservative indication of whether project-generated traffic will cause a potential CO hot spot. BAAQMD (2017) indicates that if the screening criteria are not met, a quantitative analysis through site-specific dispersion modeling of project-related CO concentrations would not be necessary and the project would not cause localized exceedances of CO CAAQS.

Screening criteria adopted by BAAQMD include quantitative criteria based on the number of additional vehicles added to affected intersections. These quantitative metrics were established based on local modeling and provide a conservative estimate for the maximum number of vehicles that can be added to an intersection without an exceedance of the CO CAAQS. BAAQMD CO screening criteria are summarized below.

1. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

2. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

3. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

Supplemental Odor Guidance

BAAQMD (2017) and CARB (2005) have identified several types of land uses as being commonly associated with odors, such as landfills, wastewater treatment facilities, and animal processing centers. BAAQMD's CEQA Guidelines recommend that plan-level analyses identify the location of existing and planned odor sources and include policies to reduce potential odors impacts.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

The following relevant policies and implementing actions of the Proposed Plan address air quality and mitigate air quality impacts on the City of St. Helena.

Land Use and Growth Management Element

- ***LU1.2*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water, and storm drainage, will only be extended to development within the Urban Limit Line.

- ***LU2.5*** Encourage the development of higher density housing in areas near the center of the city and close to recreation and services, such as transit, retail, and public facilities.
- ***LU2.6*** Allow residential density at the higher end of the permitted range for single family development within Medium and High Density Residential Land Use designations as long as the development character of the single family area is maintained, including lot widths, orientation to street, building heights, onsite parking, traffic, and noise, among other considerations.
- ***LU2.7*** Ensure safe, walkable and bikeable residential neighborhoods and vibrant, livable streets.
- ***LU2.8*** Ensure walkable and accessible neighborhoods through mixed-use development.
- ***LU3.2*** Enhance the pedestrian-oriented character of commercial areas and provide for convenient pedestrian and bicycle connections to encourage walking and reduce vehicle trips within the commercial area.
- ***LU3.3*** Support the redevelopment of auto-oriented commercial areas into pedestrian-friendly commercial uses.
- ***LU3.7*** Provide sufficient auto and bicycle parking in order to serve local businesses in the commercial districts. Ensure that all parking areas are well-designed, and that auto parking spaces are hidden from pedestrian view, whenever possible.
- ***LU3.10*** Encourage office development in Mixed-Use, Service Commercial and Central Business districts to complement the pedestrian orientation of surrounding development.
- ***LU3.A*** Identify sites in the Central Business and Service Commercial districts for mixed-use development that are close to services and facilitate walking, bicycling, and transit use.
- ***LU4.1*** Support and maintain a transitional zone around industrial areas to protect the health and safety of residential neighborhoods.
- ***LU4.C*** Evaluate the compatibility of the Industrial Area and existing heavy equipment use between Highway 29 and Crane Avenue and determine if re-zoning or other action is necessary to ensure safety and liability, hazard, and noise reduction in surrounding neighborhoods, schools, and parks.
- ***LU5.F*** Where proposed residential, commercial, or industrial development abuts lands devoted to agricultural use, require the non-agricultural uses to incorporate buffer areas to mitigate potential land use conflicts as a condition of approval for subdivisions or use permits. The type and width of buffer areas shall be determined by the City based on the character, intensity, and sensitivity of the abutting land uses.
- ***LU5.H*** Prepare and adopt guidelines and regulations to assist in the determination of the appropriate type and scope of agricultural buffer areas needed in circumstances that warrant the creation of such buffer areas.
- ***LU6.C*** Explore the feasibility and desirability of moving public facilities to the Adams Street property.

Economic Sustainability Element

- ***ES2.6*** Expand lodging in the downtown area to encourage walking, biking, and alternative transportation modes in order to reduce the need for automobile trips.

  (Also see the Circulation Element, Topic Area 4 for policies and implementing actions related to non-motorized transportation).

Public Facilities and Services Element

- ***PF1.1*** Require that the approval of new development be contingent upon the ability of the City to provide water without exceeding the safe annual yield of its water supply system.
- ***PF1.2*** Adopt and implement equitable water conservation measures for both residential and non-residential users so that the City can supply water within the safe yield of its water system.
- ***PF1.4*** Proactively reduce the City's commitment to provide water to uses outside the city limits.
- ***PF1.5*** Continue to implement and update as necessary the City's Water Management Plan Ordinance and the City's Ordinance containing the Water Use Efficiency Guidelines, along with other existing water conservation ordinances and measures.
- ***PF1.6*** Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock through the City existing Ordinances and Water Conservation Plans.
- ***PF1.H*** Ensure that water rates are designed to promote conservation, as well as to ensure that needed capital improvements are made in a timely manner.
- ***PF4.1*** Increase recycling and composting as part of a coordinated waste reduction and management program.
- ***PF4.A*** Develop and adopt a Waste Management Master Plan to enhance existing waste management services and systems. Assess the system's capacity to serve current and future residents, recommend improvements and identify funding mechanisms and implementation partners. The plan should include landfill space plans and a food waste composting program that incorporates approaches for on-site food waste composting for residences and businesses. Update the plan regularly to address changing needs and priorities.
- ***PF5.3*** Ensure that children have access to safe routes to school, especially by bicycle and walking.
- ***PF5.B*** Partner with the Napa County Office of Education, the Napa Valley Transportation Authority, the St. Helena Unified School District, and private schools in St. Helena to develop and implement local safe routes to school strategies to improve walking and bicycling access to schools and after-school programs; promote bicycling and walking to benefit students' health; decrease automobile traffic near schools; and support local efforts to improve the environment. Align safe routes to school strategies with the City's bicycle and pedestrian trail systems.

Circulation Element

- ***CR1.1*** Promote a connected street, bicycle and pedestrian network within the City to provide better internal automobile, bicycle and pedestrian connections for residents.
- ***CR1.5*** Avoid mitigation measures that negatively impact the walking and bicycling environment and encourage driving.
- ***CR1.6*** Continue to support NVTA in the provision of convenient transit, including regional and local service. Support more frequent and reliable transit service between communities to reduce the number of people traveling to or from St. Helena to work by private vehicle. Promote and encourage use of the St. Helena Vine Shuttle.
- ***CR1.7*** Explore the use of the rail corridor to reduce traffic, including working with new owners of the Wine Train to consider the possibility of developing hospitality and other tourist oriented uses that are primarily accessed by passengers riding on the Wine Train Corridor.
- ***CR1.8*** Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies:
  - Complete the City's bicycle and pedestrian network, which will increase transportation choices in the City and reduce the demand for vehicle travel;
  - Maximize the overall efficiency of the transportation system, including managing the transportation network through a citywide transportation system management program;
  - Implement "smart growth" and sustainable planning principles as defined in the Land Use Element;
  - Encourage jobs/housing match, as defined in the Housing Element; and
  - Encourage/provide incentives for employee car pools.
- ***CR1.9*** Promote a walking and bicycling environment that is comfortable and convenient. Ensure that all St. Helena streets have no more than a single through-automobile lane in each direction, plus a single left-hand turning lane where appropriate, even if this requirement increases vehicle travel times. Allow exceptions if an extra lane would reduce the possibility of collisions.
- ***CR2.1*** Create a comprehensive bicycle and pedestrian network that enhances neighborhood connectivity. Develop the system as shown in Figure 5.3 to expand and improve the pedestrian and bikeway system.
- ***CR2.2*** Promote walking and bicycling as safe and convenient modes of transportation.
- ***CR2.3*** Ensure secure, accessible and convenient bicycle parking facilities throughout St. Helena, including downtown, commercial areas, schools, and parks.
- ***CR2.4*** Preserve and enhance pedestrian connectivity and safety throughout St. Helena.
- ***CR2.5*** Improve the pedestrian experience through streetscape enhancements, focusing improvements where there is the greatest need, and by orienting development toward the street.

- ***CR2.6*** Encourage walking and bicycling trips to St. Helena schools.
- ***CR3.1*** Provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, walk, and take transit to work and reduce peak-period trip generation. Strategies include the following:
  - Transit subsidies or reimbursement to residents and employees (often referred to as "commuter check" or "EcoPass");
  - Car-share, car-pooling and neighborhood electric vehicle programs, to reduce the need to have a car or second car;
  - Integrated bicycle parking and support facilities, primarily to reduce trips within the city;
  - Modified parking codes to manage the supply of parking that generates frequent turn-over and serves multiple users; and
  - Marketing and information programs to encourage alternative transportation modes.
- ***CR3.2*** Support the implementation of NVTA goals to reduce/restrain growth of automobile vehicle miles traveled (VMT).
- ***CR3.3*** Shift travel from single-occupancy vehicles to other modes so that by 2040, 45 percent of work trips by St. Helena residents and workers are by carpool, transit, walking or bicycling (see Table 5.5 at the end of this section for 2040 commute mode split targets).
- ***CR3.4*** Work with the wine and hospitality industries to manage congestion and create and promote car-free tourism services.

  (Also see the Environmental Sustainability Element, Topic Area 2)
- ***CR3.5*** Work with the school district to increase the use of carpooling and the bus system to reduce drive-alone trips to St. Helena schools.
- ***CR3.6*** Support development of the bikeway and pedestrian networks to provide a convenient opportunity for at least 20 percent of commuters to get to work by walking or bicycling.
- ***CR3.7*** Support compact, mixed-use development as outlined in the Land Use and Growth Management and Housing elements.
- ***CR4.2*** Ensure safety on residential neighborhood streets to promote walking and bicycling and preserve neighborhood livability.
- ***CR4.3*** Continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas.
- ***CR4.5*** Improve traffic safety and encourage walking and bicycling trips to St. Helena schools through a Safe Routes to School program.

Community Design Element

- ***CD1.3*** Require construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive heating and cooling and energy generation, on-site water reuse, water efficient landscaping, and use of low-flow appliances, among others.

  (Also see the Climate Change Element, Topic Area 2)

- ***CD2.B*** Require street tree plantings along the commercial streets east of Main Street to reflect Main Street's existing planting pattern, in order to provide visual continuity and to create a pleasant pedestrian environment.

- ***CD3.3*** Encourage the use of landscaping and tree plantings as buffers between sidewalks and residential uses. Discourage the removal of existing trees and adopt more comprehensive tree preservation standards.

  (See also the Open Space and Conservation Element for policies and implementing actions related to tree preservation).

- ***CD3.D*** Encourage property owners to install landscaping and tree plantings in front setbacks as a buffer between the sidewalk and residential uses.

- ***CD3.E*** Require new development to include landscaping and street trees

Open Space and Conservation Element

- ***OS4.A*** Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees. Key program aspects will include the following:
  - A tree planting program to ensure that new trees are planted regularly;
  - A tree maintenance program to ensure that existing trees are healthy and pruned;
  - A tree inventory to create a comprehensive listing of the City's trees and tree-related needs;
  - A Tree Committee to oversee the implementation of the urban forestry program and approval of tree removals;
  - A landmark tree list that identifies trees that require additional protection from damage and/or removal; and
  - Appropriate Heritage tree deed restrictions.

Public Health, Safety, and Noise Element

- ***PS1.1*** Achieve and maintain clean, healthy air for the residents of St. Helena to preserve environmental quality and community health.

- ***PS1.2*** Support regional efforts to achieve and maintain state ambient concentration standards to protect public health, reduce adverse industrial plant effects and enhance the visual environment. In particular, provide local support for implementation of policies and measures set forth in the Napa County Congestion Management Program.

- ***PS1.3*** Encourage effective regulation of those sources of air pollution, both inside and outside of St. Helena, which affect air quality, by implementing as many of the recommendations of the Napa County Congestion Management Plan as is feasible.
- ***PS1.A*** Minimize local adverse air quality impacts related to construction by requiring dust abatement procedures for local projects.
- ***PS1.C*** Review project proposals for their potential to generate hazardous air pollutants.
- ***PS1.E*** Encourage and support regional efforts to use alternative modes of transportation.
- ***PS1.H*** Continue to implement an ordinance to restrict exposure to environmental tobacco smoke in new and existing multi-unit dwellings, public events, and outdoor areas, such as parks and playgrounds.
- ***PS1.J*** The potential for sources of odors that includes restaurants, auto body shops, or waste treatment facilities shall be considered when evaluating proposed residential projects and projects with sensitive recipients.

Climate Change Element

- ***CC1.1*** Promote a "walkable" and "bikeable" city.
- ***CC1.2*** Support transportation efforts to optimize fuel efficiency and reduce vehicle miles traveled on local roads.
- ***CC1.3*** Seek initiatives that provide efficient modes of transportation for visitors and residents.
- ***CC2.1*** Encourage measures to reduce energy demand through conservation and efficiency.
- ***CC2.2*** Support local efforts to improve the energy supply by switching from fossil fuels to renewables.
- ***CC2.C*** Implement Title 24 energy conservation standards for new buildings, and other State building code standards for high performance "green" buildings. Utilize established green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green.
- ***CC2.D*** Continue to reduce energy use by promoting domestic water conservation and requiring water-efficient landscape improvements associated with new construction.
- ***CC2.E*** Reduce greenhouse gas emissions from buildings and energy use. Require or request that new development projects analyze greenhouse gas emissions due to energy use and incorporate energy and safe yield water conservation measures into projects.
- ***CC2.F*** In support of countywide energy generation efforts, increase local renewable energy generation. Adopt production standards for the City based on quantifiable measures that increase per capita generation levels.
- ***CC2.G*** Remove regulatory impediments and economic disincentives associated with the generation and use of energy from renewable sources, such as wind, geothermal, and solar energy.

- ***CC3.1*** Enhance recycling, composting, and source reduction services for residential and commercial uses to support Napa County's countywide waste reduction goal to achieve overall waste diversion of 75 percent to 90 percent by 2020.

  (Also see the Public Facilities and Services Element, Topic Area: 4)

- ***CC4.1*** Support efforts to protect and increase the amount of vegetation and biomass in soil and reduce emissions from agricultural sources.

- ***CC4.3*** Strengthen water conservation measures that result in significant reductions in local water use and the protection of local water resources.

  (Also see the Community Design Element, Topic Area: 1)

- ***CC4.H*** Adopt landscape ordinances that promote drought resistant plants, and limit or restrict lawns and other high-water-demand plants unless irrigated with reclaimed or grey water systems.

- ***CC4.J*** Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees especially native varietals when possible.

- ***CC6.1*** Ensure that the City leads by example in managing its local government operations while implementing the following policy directions:
  - Encourage the reduction of fossil fuel consumption by local government operations.
  - Improve energy efficiency, implement alternative and renewable energy solutions, and reduce greenhouse gas emissions in City and county facilities and operations.
  - Reducing solid waste from City and County operations and facilities.
- ***CC6.E*** Convert street lighting, water pumping, water treatment, and other energy-intensive operations to more efficient technologies.

- ***CC6.F*** Ensure that new municipal or substantially-renovated municipal facilities incorporate cost-effective strategies for reducing greenhouse gas emissions, conserving energy and water, and utilizing sustainable construction practices.

IMPACTS

Impact 3.3-1 Development under the Proposed Plan will not conflict with or obstruct the implementation of the applicable air quality plan. (*Less than Significant)*

The CAA requires that an SIP or an air quality control plan be prepared for areas with air quality violating the NAAQS. The SIP sets forth the strategies and pollution control measures that states will use to attain the NAAQS. The CCAA requires attainment plans to demonstrate a five percent per year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air quality

attainment plans (AQAPs) outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date. As described in the Regulatory Setting, the current AQAP for the SFBAAB is BAAQMD's 2017 Clean Air Plan, which provides an integrated strategy to control ozone, PM, TACs, and GHG emissions. This and other previous AQAPs estimate future emissions in the SFBAAB and determine strategies necessary for emissions reductions through regulatory controls. Emissions projections are based on population, vehicle, and land use trends typically developed by BAAQMD, MTC, and ABAG.

The Proposed Plan would establish an updated regulatory framework that would amend the existing land use designations of the City's existing General Plan, as well as future modifications to the City's zoning regulations to be consistent with the General Plan, to guide private and public development within the city over the next 20 years. The development and population estimated at 2040 buildout of the Proposed Plan may differ from the population and employment growth estimates used in formulating the emissions limits and control measures of the 2017 Clean Air Plan. However, projections for 2040 based on buildout of the Proposed Plan are generally consistent with ABAG.

According to BAAQMD's (2017) CEQA Guidelines, the determination of AQAP consistency should consider the following for plan-level analyses:

1. Does the plan support the primary goals of the air quality plan?
2. Does the plan include applicable control measures from the air quality plan?
3. Does the plan disrupt or hinder implementation of any air quality plan control measures?

Support of 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, reduce GHG emissions, and protect the climate. To meet these goals, the Proposed Plan focuses on developing infill within the City's Urban Limit Line (ULL), constructing green buildings that are energy efficient and use environmentally-responsible materials, and protecting sensitive receptors from air quality pollution. Other fundamental components of the Proposed Plan also support the goals of the Clean Air Plan. The preservation of agricultural and open space lands outside of the ULL helps to reduce emissions by having green space that can sequester carbon. These types of low-density land uses also generally have fewer buildings and vehicle trips, thereby reducing energy consumption. The protection of public health is highlighted in the Public Safety Element and through policies and implementing actions to attain air quality standards, reduce emissions, and to have buffer zones around industrial areas and State Route 29. Additionally, the Proposed Plan contains numerous policies and implementing actions in support of the goals of the Clean Air Plan, as shown in Table 3.3-6.

With implementation of the Proposed Plan, per capita emissions in the CIty of St. Helena in 2040 would be lower than forecasted under the Clean Air Plan without the Proposed Plan, as the Clean Air Plan does not assume the sustainability policies and transit-oriented development patterns that would be implemented under the Proposed Plan. Reductions in per capita emissions would further help the region attain the AAQS. Based on the above analysis and proposed policies and implementing actions, the Proposed Plan would support the primary goals and implementation of

the 2017 Clean Air Plan. Relevant Proposed Plan policies that would support the 2017 Clean Air Plan goals are discussed below and provided in Table 3.3-6.

Applicable Control Measures

The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution in the SFBAAB from a wide variety of emission sources. The control measures are classified for the following nine general sectors: (1) Stationary Sources; (2) Transportation; (3) Energy; (4) buildings; (5) Agriculture; (6) Natural and Working Lands; (7) Waste Management; (8) Water; and (9) Super-GHG Pollutants. Table 3.3-6 presents the control measures of the 2017 Clean Air Plan that are applicable to the Proposed Plan and how the Proposed Plan complies with each of the measures.

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Relevant General Plan Update Policies and Implementing Actions*
Stationary Source		
SS20	Air Toxics Risk Cap and Reduction from Existing Facilities	Policy PS1.2 supports efforts to achieve state ambient concentration standards to reduce adverse industrial plant effects. Implementing Action PS1.E would develop guidelines to locate new sensitive uses away from air pollutant sources, including measures to mitigate air emissions from existing facilities and to design buildings to prevent exposure.
SS30	Residential Fan Type Furnaces	Policy CD1.3 would require construction and development practices such as site design to maximize passive heating and cooling, which would reduce use of indoor cooling/heating equipment and their associated emissions. Implementing Action PS1.C encourages the use of EPA-approved wood stoves or fireplace inserts, rather than fireplaces, to reduce emissions.
SS31	General Particulate Matter Emission Limitation	Implementing Action PS1.A requires dust abatement procedures for local construction projects to minimize air quality impacts.
SS36	PM from Trackout	See above for SS31.
Transportation		
TR1	Clean Air Teleworking Initiative	Policy CR3.1 would provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, walk, and take transit to work and reduce peak-period trip generation.
TR2	Trip Reduction Programs	Policy CR3.3 aims to substantially reduce work trips made by St. Helena workers and residents. Policies LU3.10, CR1.6, CR1.7, and CR1.8 and Implementing Actions LU3.A and LU6.C would support development that would enable effective employer-based trip reductions.
TR5	Transit Efficiency and Use	While this is mostly a regionally-implemented transportation control measure (TCM), see Policies CR1.6, CR1.7, CR3.1, CR3.2, and CR3.4.

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Relevant General Plan Update Policies and Implementing Actions*
TR6	Freeway and Arterial Operations	This is primarily a regional measure. St. Helena has a relatively small network of arterial roadways. Policies and implementing actions that directly and indirectly support management of arterial roadways include LU3.2, LU3.3, LU4.C, CR1.1, and CR3.4.
TR7	Safe Routes to School and Safe Routes to Transit	Proposed Plan policies and implementing actions promoting bicycling and walking near schools include PF5.B, PF5.3, CR2.6, CR3.5, and CR4.5.
TR8	Ridesharing, Last-Mile Connection	St. Helena is relatively rural compared to other Bay Area communities, so opportunities to effectively expand rideshare services and incentives are somewhat limited. Policy CR3.1 would provide incentives and encourage major employers to develop and implement TDM programs that promote rideshare services.
TR9	Bicycle and Pedestrian Access and Facilities	The Proposed Plan includes numerous policies and implementing actions that would encourage bicycling and improve bicycle access and facilities: LU2.8, LU3.2, LU3.7, LU3.9, LU3.10, LU3.A, LU6.D, LU6.E, ES2.D, PF5.B, PF5.3, CR1.1, CR1.5, CR1.9, CR2.1, CR2.2, CR2.3, CR2.4, CR2.6, CR3.1, CR3.3, CR3.6,CR4.2, and CR4.5.
TR10	Land Use Strategies	The Climate Change Element of the Proposed Plan addresses the primary programs that support the City's clean air programs and policies.
TR12	Smart Driving	Policy CR4.3 would continue St. Helena's efforts to calm traffic, minimizing traffic volumes and reducing traffic speeds.
TR13	Parking Policies	St. Helena does not currently have large parking facilities. Proposed Plan Policy CR3.1 would include TDM strategies that would modify parking codes to efficiently manage the supply of parking.
TR15	Public Outreach and Education	While this is mostly a regionally-implemented TCM, Policy CR3.1 would encourage the dissemination of marketing and information programs to encourage alternative transportation modes.
Energy		
EN1	Decarbonize Electricity Production	Policy CC6.1 addresses renewable energy use by local government operations and encourages implementation of alternative and renewable energy solutions. Policy CC2.2 and Implementing Actions CC2.F and CC2.G promote increasing local renewable energy production and removing regulatory and economic impediments associated with renewable energy.
EN2	Decrease Electricity Demand	Policies CC2.1 and CD1.3 promote local and construction practices that reduce energy demand through conservation and efficiency. Implementing action
Building		
BL1	Green Buildings	Policy CD1.3 requires construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Relevant General Plan Update Policies and Implementing Actions*
		heating and cooling and energy generation on site, water reuse, water efficient landscaping and use of low-flow appliances. Implementing Action CC2.C requires improved energy conservation (Title 24) standards for new buildings, and other state building code standards for high performance "green" buildings, and the establishment of green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green.
BL2	Decarbonize Buildings	See above for BL1. Policy CC2.2 supports local efforts to switch from fossil fuels to renewables.
BL4	Urban Heat Island Mitigation	CD3.E and other implementing actions require new development to include landscaping and street trees.
Natural and Working Lands		
NW2	Urban Tree Planting	Implementing Action CC4.J would establish an urban forestry program to maintain and increase the City's trees. Implementing Actions CD2.B and CD3.D promote landscaping and tree planting in commercial and residential areas. Policy CD3.3 encourages landscaping and tree planting, discourages tree removal, and supports the adoption of a more comprehensive tree ordinance.
Waste Management		
WA1	Landfills	Policy PF4.1 and Implementing Action PF4.A would increase recycling and composting through the adoption of a Waste Management Master Plan to enhance existing management services and systems. This includes landfill space plans and a food composting program. Policy CC3.1 further enhances recycling, composting, and source reduction services to support Napa County's waste reduction goal.
WA2	Composting and Anaerobic Digesters	See above for WA1.
WA3	Green Waste Diversion	See above for WA1.
WA4	Recycling and Waste Reduction	See above for WA1.
Water		
WR2	Support Water Conservation	Various policies included in the Public Facilities and Services Element, including Policies PF1.1, PF1.2, PF1.4, PF1.5, and PF1.6, would support water conservation by new development in the city. Implementing Actions CC2.1, CC2.D, CC2.E, CC4.H, CC4.1, CC6.E, CC6.F and Policy CC4.3 strengthen water conservation measures.
Super-GHG		
SL1	Short-Lived Climate Pollutants	The promotion of transit, bicycling, pedestrian activities, and trip reductions would serve to reduce mobile-source emissions of GHGs. Policies that promote mixed-use development and the diversion of solid waste to landfills along with environmentally-sensitive design guidelines and standards that would be incorporated

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures	*Relevant General Plan Update Policies and Implementing Actions*
	into new development would reduce GHG emissions. Various policies included in the Climate Change Chapter would support the reduction of short-lived climate pollutants.

Sources: BAAQMD, 2017; City of St. Helena, 2018; Dyett & Bhatia, 2018

Stationary Sources

Stationary sources typically include oil refineries, cement plants, natural gas distribution facilities, crude oil and natural gas production facilities, gas stations, dry cleaners, metal fabricators, chemical and pharmaceutical production facilities, diesel generators, and large boilers used in commercial and industrial facilities. A total of 40 proposed stationary source control measures are included in the Clean Air Plan. Eleven of the proposed measures focus primarily on reducing GHG emissions, the remainder of the stationary source measures aim to protect public health by reducing emissions of criteria pollutants and TACs from oil refineries and other sources.

BAAQMD is primarily responsible for implementing the stationary source control measures through its rulemaking, permitting and enforcement programs. Generally, the City of St. Helena uses BAAQMD's CEQA Air Quality Guidelines, including adopted CEQA standards and thresholds, to evaluate air pollutant emissions from new stationary sources, as well as potential environmental impacts resulting from newly proposed stationary sources (see Policy PS1.H above).

Transportation

The transportation sector includes on-road motor vehicles, categorized by weight class, such as light-duty automobiles or heavy-duty trucks; off-road vehicles, including airplanes, locomotives, ships and boats; and off-road equipment, such as airport ground-support equipment, construction equipment and farm equipment. A total of 23 proposed transportation control measures are included in the 2017 CAP. The transportation measures proposed in the plan will decrease emissions of criteria pollutants, TACs, diesel PM, and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. While most of the transportation control measures are implemented at the regional level (that is, by the Metropolitan Transportation Commission (MTC), ABAG, BAAQMD, CARB or Caltrans), there are measures in which the Clean Air Plan relies upon local communities to assist with implementation. As shown in Table 3.3-6, the Proposed Plan would be consistent with the applicable transportation control measures contained in the 2017 Clean Air Plan.

Energy

The energy sector includes emissions of criteria pollutants, local air toxics, and GHGs from electricity generated and used within the Bay Area, as well as GHG emissions from electricity generated outside the Bay Area that is imported and used within the region. Two proposed energy

control measures are included in the 2017 CAP: EN1 – Decarbonize Electricity Production and EN2 – Decrease Electricity Demand. The energy measures proposed in the plan will reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing (1) the amount of electricity consumed in the Bay Area, and (2) the carbon intensity of the electricity we use, by switching to less GHG-intensive fuel sources for electricity generation.

BAAQMD is primarily responsible for implementing the energy control measures through its funding, outreach, and education programs. The Proposed Plan contains policies and implementing actions to reduce energy demand through conservation and efficiency. Policy CD1.3 requires construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive heating and cooling and energy generation, on site water reuse, water efficient landscaping and use of low-flow appliances, among others. Policy CC2.2 supports local efforts to improve the energy supply by switching from fossil fuels to renewables.

Buildings

The buildings sector includes residential, commercial, governmental, and institutional buildings. Buildings generate emissions through energy use for heating, cooling, and operating the building, and from the materials used in building construction and maintenance. Four proposed building control measures are included in the 2017 CAP: BL1 – Green Buildings, BL2 – Decarbonize Buildings, BL3 – Market-Based Solutions, and BL4 – Urban Heat Island Mitigation. BAAQMD has the authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures rely on local governments that have authority over local building codes and the ability to facilitate adoption of best GHG control practices and policies.

The Proposed Plan contains policies and implementing actions to reduce energy in existing and proposed buildings. Policy CD1.3 requires construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive heating and cooling and energy generation on site, water reuse, water efficient landscaping, and use of low-flow appliances. Implementing Action CC2.C requires improved energy conservation (Title 24) standards for new buildings, and other state building code standards for high performance "green" buildings, and the establishment of green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green.

Agriculture

Sources of air pollution from agricultural operations include on- and off-road trucks and farming equipment, aircraft for crop spraying, animal waste, pesticide and fertilizer use, crop residue burning, travel on unpaved roads, and soil tillage. Four proposed agriculture control measures are included in the 2017 CAP. The BAAQMD regulates agricultural (biomass) burning via Regulation 5 and would rely on outreach and education to influence agricultural equipment and soil management.

Most of the agriculture in St. Helena is cultivated with vineyards; therefore, agriculture in the city does not produce significant sources of methane emissions. The Proposed Plan contains policies and implementing actions to reduce agricultural emissions. For example, Policy CC4.1 Support

efforts to protect and increase the amount of vegetation and biomass in soil and reduce emissions from agricultural sources.

Natural and Working Lands

The natural and working lands sector, including forests, woodlands, shrub lands, grasslands, rangelands, and wetlands. When properly managed, most lands within the natural and working lands sector help to mitigate global warming by sequestering carbon. Three proposed natural and working lands control measures are included in the 2017 Clean Air Plan. The control measures focus on urban tree planting and increasing carbon sequestration on rangelands and wetlands. The BAAQMD would focus on updating its guidelines to include tree planting and carbon sequestration mitigation.

The Proposed Plan contains policies and implementing actions to protect and enhance tree resources in developed and undeveloped areas. For example, Implementing Action OS4.A would establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees.

Waste Management

The waste management sector includes GHG emissions from landfills and composting activities. A variety of air pollutants are produced as waste decomposes in landfills and composting operations. Four proposed waste management control measures are included in the 2017 Clean Air Plan. The control measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. BAAQMD would implement these control measures through rulemaking and developing model policies to facilitate local adoption of ordinances and programs.

There are no landfills within the Planning Area, but the Proposed Plan contains policies and implementing actions to increase recycling and composting. For example, Implementing Action PF4.A entails the development and adoption of a Waste Management Master Plan, which would include a food waste composting program that incorporates approaches for on-site food waste composting for residences and businesses.

Water

Water is used in the city to support residential, commercial, agricultural, and industrial activities. Electricty needed to treat and distribute water results in criteria air pollutant and toxic air contaminants emissions, as well as GHG emissions. Two proposed water control measures are included in the 2017 CAP: WR1 – Limit GHGs from Publicly-Owned Treatment Works and WR2 – Support Water Conservation. BAAQMD would implement these control measures through rulemaking, public outreach, and education.

The Proposed Plan contains policies and implementing actions to support water conservation. For example, Policy PF1.6 calls for aggressively promoting the adoption of "best practices" for reducing water usage in the existing housing stock through the City's existing Ordinances and Water Conservation Plans. Implementing Action PF1.H would ensure that water rates are designed to promote conservation.

Super-GHG Pollutants

Super-GHGs include methane, black carbon and fluorinated gases (F-gases), which have a very high global warming potential on a per-unit basis, in comparison to CO_2. Three proposed super-GHG control measures are included in the Clean Air Plan. BAAQMD would implement these control measures through rulemaking, public outreach, education, and the development of a GHG air monitoring plan for the Bay Area. BAAQMD also plans to track progress in adoption and implementation of super-GHG reduction measures in local plans and programs. The Proposed Plan contains a Climate Change Element with policies and implementing actions to reduce GHGs.

As discussed above, the Proposed Plan includes numerous policies that promote mixed-use and transit-oriented development along with sustainable, environmentally-sensitive design. The Proposed Plan would not cause the disruption, delay, or otherwise hinder implementation of any applicable control measure from the 2017 Clean Air Plan. Rather, as shown in Table 3.3-6, the Proposed Plan has incorporated many of the control measures identified in the 2017 Clean Air Plan related to the transportation, building, energy, waste, and water sectors into its policies for implementation. Accordingly, development under the Proposed Plan would not fundamentally conflict with the 2017 Clean Air Plan and would result in a less than significant impact with respect to implementation of BAAQMD's Plan.

Mitigation Measures

None required.

Impact 3.3-2 Development under the Proposed Plan would violate air quality standards or contribute substantially to an existing or projected air quality violation. (*Significant and Unavoidable*)

Development under the Proposed Plan that would exceed BAAQMD's regional significance thresholds would contribute to the nonattainment designation of the SFBAAB, which constitutes an air quality violation. The SFBAAB is currently designated a nonattainment area for California and national O_3, California $PM_{2.5}$, and California PM_{10} AAQS. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$)

Any development under the Proposed Plan that could produce a significant regional air quality impact in an area that is in nonattainment and contribute to health impacts discussed above. Although BAAQMD's CEQA Air Quality Guidelines only require an emissions inventory of criteria air pollutants for project-level analyses, an inventory of criteria air pollutants was generated for the Proposed Plan, since enough information regarding the buildout of the Proposed Plan is available to identify the magnitude of emissions from buildout and whether development allowed under the Proposed Plan would contribute to an air quality violation. Tables 3.3-7 and 3.3-8 identify the emissions associated with buildout of the Proposed Plan for the Planning Area and St. Helena. Subsequent environmental review of development projects would be required to more accurately assess potential impacts under BAAQMD's project-level thresholds.

Table 3.3-7. Estimated Maximum Daily Unmitigated Operational Emissions for the Proposed Plan (pounds per day), City of St. Helena

Analysis Condition/Source	*ROG*	*NOx*	*CO*	*PM10*	*PM2.5*
Baseline (2018)					
Area	2,453	10	2,746	346	346
Energy	3	29	17	2	2
Mobile	116	546	1,233	244	67
Total[1]	*2,573*	*615*	*3,996*	*593*	*417*
2040 With Proposed Plan					
Area	2,707	44	3,027	382	382
Energy	4	32	19	3	3
Mobile	39	284	433	286	77
Total	*2,750*	*360*	*3,479*	*670*	*461*
Net Increase with Proposed Plan					
2040 With Proposed Plan vs. Existing	177	(255)	(517)	77	44
Threshold[2]	54	54	-	82	54
Exceed Threshold?	**Yes**	No	-	No	No

Note: Emission outputs from CalEEMod are generated for both the summer and winter seasons, with emission levels differing slightly for the pollutants in each season. Emission levels of ROG and NOx tend to be generally higher during the winter while emissions of CO tend to be generally higher in the summer. Emissions of PM10 and PM2.5 remain the same during both seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

1. Numbers may not add due to rounding.
2. BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire general plan such as the Proposed Plan.

Source: ICF, 2018

Table 3.3-8. Estimated Maximum Daily Unmitigated Operational Emissions for the Proposed Plan (pounds per day), Planning Area

Analysis Condition/Source	*ROG*	*NOx*	*CO*	*PM10*	*PM2.5*
Baseline (2018)					
Area	2,637	43	2,947	372	372
Energy	4	31	18	2	2
Mobile	154	739	1,691	341	96
Total[1]	*2,795*	*812*	*4,656*	*716*	*471*
2040 With Proposed Plan					
Area	2,715	44	3,027	382	382
Energy	4	33	20	3	3
Mobile	57	407	654	439	118
Total	*2,775*	*484*	*3,701*	*823*	*503*
Net Increase with Proposed Plan					
2040 With Proposed Plan vs. Existing	(20)	(328)	(955)	107	32
Threshold[2]	54	54	-	82	54
Exceed Threshold?	No	No	-	**Yes**	No

Notes:

Emission outputs from CalEEMod are generated for both the summer and winter seasons, with emission levels differing slightly for the pollutants in each season. Emission levels of ROG and NOx tend to be generally higher during the winter while emissions of CO tend to be generally higher in the summer. Emissions of PM10 and PM2.5 remain the same during both seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

1. Numbers may not add due to rounding.
2. BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan such as the Proposed Plan.

Source: ICF, 2018

Construction

Construction associated with new land use developments under the Proposed Plan would result in the temporary generation of ozone precursors (ROG, NO_X), CO, and particulate matter emissions that could result in short-term impacts on ambient air quality in the City of St. Helena. Emissions would originate from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, land clearing, demolition, architectural coatings, and asphalt paving. Construction-related emissions would vary substantially, depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

By its nature as a general plan, the Proposed Plan does not directly propose any specific development projects. Rather, construction of new land use developments allowable under the Proposed Plan would occur intermittently in the City of St. Helena throughout the course of the buildout period. As the timing and intensity of future development projects is not known at this time, the precise effects of construction activities associated with buildout of the City of St. Helena cannot be accurately quantified at this time. Therefore, impacts associated with construction emissions within the city are discussed at a qualitative level.

As noted previously, BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project. While the construction emission impacts associated with each new individual development would be short-term in nature (relative to the buildout year) and limited to the period of time when construction activity is taking place for that particular development, the concurrent construction of a multitude of individual development projects that could occur at any one time in the City of St. Helena under the Proposed Plan could generate combined criteria pollutant emissions on a daily basis that would exceed BAAQMD's project-level thresholds. Additionally, depending on the size and scale of an individual development project, along with its construction schedule and other parameters, there may also be instances where the daily construction emissions generated by a single development project could also exceed BAAQMD's criteria pollutant thresholds. As such, construction emissions generated by implementation of the Proposed Plan could result in a potentially significant impact on air quality.

During construction of a development project, the activity that typically generates the highest NO_X and PM exhaust emissions is the operation of off-road equipment, whereas the activity that typically generates the highest ROG emissions is the application of architectural coatings. BAAQMD considers fugitive PM_{10} and $PM_{2.5}$ dust emissions significant without the application of standard best management practices (BMPs). Mitigation Measure AQ-1 would require construction projects in the City of St. Helena to implement BMPs to reduce these fugitive dust emissions. Mitigation Measure AQ-2 requires the use of low-VOC paints to reduce ROG emission levels would be required during construction activities in the City. Implementation of Mitigation Measures AQ-1 and AQ-2 would help reduce fugitive PM emissions and ROG impacts under the Proposed Plan.

However, with respect to ROG, NOx and PM exhaust emissions, there could be foreseeable conditions under the Proposed Plan where the amount of construction activity for an individual development project, or a combination of these projects, could result in the generation of these pollutant emissions that exceed their respective BAAQMD significance thresholds (54 pounds/day for ROG and NOx, 82 pounds per day for exhaust PM_{10}, and 54 pounds/day for exhaust $PM_{2.5}$). Even with implementation of Mitigation Measures AQ-1 and AQ-2 emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ exhaust may not be reduced to levels below BAAQMD's thresholds when multiple construction projects are concurrently ongoing in St. Helena. Accordingly, additional mitigation would be required to reduce these emissions impacts to a less-than-significant level. Thus, even with mitigation, construction emissions from the Proposed Plan remain significant and unavoidable.

Operation

As discussed, BAAQMD's CEQA Air Quality Guidelines only require an emissions inventory of criteria air pollutants for project-level analyses. As sufficient information is available regarding the

magnitude of emissions at buildout of the Proposed Plan, an inventory of criteria air pollutants at project-level significance thresholds was generated. This analysis utilizes the project-level standards for the purpose of a conservative analysis. These standards would apply to subsequent development under the Proposed Plan.

Buildout of the Proposed Plan has the potential to result in air quality impacts from mobile, area, and energy sources. Mobile sources would include vehicle trips generated by land uses proposed within the city. Area sources would include hearth usage, landscaping equipment, off-gassing during the reapplication of architectural coatings, and consumer products (e.g., solvents, cleaning supplies, cosmetics, toiletries). Energy sources would include onsite natural gas combustion for space and water heating. Each of these sources was taken into account in calculating the Proposed Plan's long-term operational emissions, which were quantified using the CalEEMod (see methodology discussion above).

Table 3.3-7 summarizes daily mobile, area, and energy source emissions generated under baseline (2018) and buildout (2040) conditions with the Proposed Plan. To evaluate the magnitude of the change in the air quality environment due to implementation of the Proposed Plan, the emissions under the Proposed Plan at buildout in 2040 are compared to the emissions under existing conditions, and the resulting net increase in emissions is compared to BAAQMD's project-level thresholds for the purpose of a conservative analysis. While the Planning Area includes three study areas in unincorporated Napa County, CalEEMod was run separately for the City of St. Helena and the Planning Area as a whole. Since the Proposed Plan does not include any development within the study areas and the Plan does not include policies that pertain to the study areas, as they are under the jurisdiction of Napa County, it is important to analyze the impacts of the Proposed Plan within the city limits. However, as air quality is by nature a cumulative impact, the results of CalEEMod for the entire Planning Area are also presented for comparison in Table 3.3-8.

As indicated in Table 3.3-7, operational sources under the Proposed Plan for the City of St. Helena would result in a net increase in criteria pollutant emissions of ROG, PM_{10}, and $PM_{2.5}$. However, only the increase in ROG exceeds BAAQMD's project-level thresholds. Emissions of NOx and CO show a net reduction would occur under the Proposed Plan when compared to existing conditions, which is primarily attributed to the continued improvement in mobile source emissions in California over time due to vehicle fleet turnover and the implementation of more advanced vehicle technologies, including lower emission fuels.

While vehicle fleet turnover and improved vehicle technologies over time would result in a reduction of PM_{10} and $PM_{2.5}$ exhaust emissions, the fugitive PM_{10} and $PM_{2.5}$ emissions generated by vehicle travel on roadways would still occur and would not receive the same emissions reduction benefits because those emissions are dependent on vehicle miles traveled (VMT). Since full buildout of the Proposed Plan in 2040 would result in an increase of total VMT over existing conditions, the fugitive PM_{10} and $PM_{2.5}$ emissions from on-road travel by vehicles would also increase over baseline conditions. While fugitive PM_{10} and $PM_{2.5}$ emissions made up approximately 98 and 93 percent of the total mobile source PM_{10} and $PM_{2.5}$ emissions, respectively, under baseline conditions in the City of St. Helena, fugitive PM_{10} and $PM_{2.5}$ emissions made up 99 percent of the total mobile source PM_{10} and $PM_{2.5}$ emissions under the Proposed Plan in 2040. Comparative proportions are observed within the Planning Area. These results indicate that exhaust emissions

of PM_{10} and $PM_{2.5}$ in 2040 would decline as a result of the benefits from vehicle fleet turnover and the implementation of more advanced vehicle technologies.

As discussed above, BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer a conservative evaluation of emissions from implementation of an entire general plan. Accordingly, operational air quality impacts of the Proposed Plan are also evaluated for consistency with the 2017 Clean Air Plan to determine whether criteria pollutant emissions attributed to population and economic growth are significant. Impact 3.3-1 provides the 2017 Clean Air Plan consistency analysis based on the requirements of BAAQMD's 2017 CEQA Guidelines. The analysis demonstrates that the Proposed Plan would support the goals of the 2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation.

The Proposed Plan includes numerous policies to reduce criteria air pollutants. Policies within the Proposed Plan, including PS1.1, PS1.2, and PS1.3, address adhering to air quality standards and reducing air pollution. Additionally, Implementing Action PS1.H calls for the adoption of BAAQMD Guidelines for Assessing the Impacts of Projects and Plans thresholds of significance for determining the significance of project impacts under CEQA. Implementing Action PS4.J calls for educating the public about the use of green household products in an effort to reduce air pollution, including ROGs.

The Proposed Plan also includes policies specifically related to the reduction of VMT, which would reduce mobile-source emissions. Policies that reduce VMT address increasing density and maintaining growth within the City's ULL, including LU 1.2, LU2.5, LU2.6, and CR3.7. Policies that encourage walking, biking, carpooling, public transit, and other alternatives to single-occupancy automobile use include LU2.7, LU2.8, LU3.2, LU3.3, LU3.7, LU3.10, ES2.6, PF5.3, CC1.1, CC1.2, CC1.3, CR1.1, CR1.5, CR1.6, CR1.7, CR1.8, CR1.9, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CR3.1, CR3.2, CR3.3, CR3.4, CR3.5, CR3.6, CR4.2, and CR4.5.

In addition to policies and implementing actions within the Proposed Plan, Mitigation Measures AQ-1, AQ-2, and AQ-3 are recommended to further reduce criteria air pollutants. Mitigation Measure AQ-1 aims to reduce PM through best management practices (BMPs) for construction-related pollution. Mitigation Measure AQ-2 addresses a decrease in ROGs by requiring the use of low VOC coatings for developments. Pursuant to Mitigation Measure AQ-3, all development applications with the potential to create point-source air quality impacts must be referred to BAAQMD for review and comment to ensure compliance with BAAQMD requirements prior to approval of the project.

Future development under the Proposed Plan would be required to comply with applicable air quality plans, SIP, CARB motor vehicle standards, BAAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the Proposed Plan policies; however, there is no guarantee emissions would be mitigated below BAAQMD thresholds. Accordingly, operational sources under the Proposed Plan would result in a significant and unavoidable air quality impact associated with ROG and PM_{10} emissions.

Significance Before Mitigation: Significant

Mitigation Measures

AQ-1: Require construction projects in the City of St. Helena to implement BMPs to reduce fugitive dust emissions. BMPs may include:

- Watering all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) three times per day using recycled water.
- Covering all haul trucks transporting soil, sand, or other loose material.
- Removing all visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Limiting all vehicle speeds on unpaved roads to 15 mph.
- Completing all roadways, driveways, and sidewalks to be paved as soon as possible. Laying building pads soon as possible after grading unless seeding or soil binders are used.
- Minimizing idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- Maintaining and properly tuning all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper working condition prior to operation.
- Staging construction equipment as far as possible from existing sensitive receptors (away from the southeast property line and surrounding residences).
- Posting a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

  Where warranted, the project sponsors shall incorporate the following language into construction specifications if significant risk is anticipated based on design level construction schedule, duration and concurrent construction activities:

- Powering portable equipment by electricity if available or if electricity is not available, using propane or natural gas if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas.
- Ensuring that all mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days continuously or 20 hours cumulative meets, at a minimum, U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent and be equipped with diesel particulate matter filters that meet CARB-certified Level 2 or 3 Diesel Particulate Filters. Alternatively-fueled equipment (i.e., non-diesel) would meet this requirement.

AQ-2: Require that applicants proposing development of projects within the City of St. Helena require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the use of low-VOC coatings to BAAQMD prior to the start of construction.

AQ-3: Require all development applications with the potential to create point-source air quality impacts be referred to the Bay Area Air Quality Management District (BAAQMD) for review and comment to ensure compliance with BAAQMD requirements prior to approval of the project.

Significance After Mitigation: Significant and Unavoidable. The Proposed Plan includes policies and implementing actions that would minimize air pollution to the extent feasible. Mitigation Measures AQ-1, AQ-2, and AQ-3 would further reduce ROGs from architectural coating, and PM from construction, as well require all development with the potential to create point-source air quality impacts to receive BAAQMD review prior to approval. Additionally, an analysis of emissions generated from the operation of development allowed under the Proposed Plan would be individually compared to BAAQMD's project-level significance thresholds during individual environmental review. However, the total criteria air pollutant emissions from operation of future development under the Proposed Plan is likely to be substantial and could contribute to increases in concentrations of air pollutants, which could contribute to ongoing violations of air quality standards. Because the detail of future projects allowed under the Proposed Plan cannot be known at this time, the impact is considered significant and unavoidable.

Impact 3.2-3 Development under the Proposed Plan would result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (*Significant and Unavoidable*)

Air pollution is by nature a cumulative impact. No single project by itself would be sufficient in size to result in regional nonattainment of AAQS. Instead, a project's individual emissions contribute to existing adverse air quality conditions, and together with other past, present, and reasonably foreseeable projects could result in a significant impact. Criteria air pollutant emissions generated by cumulative development associated with buildout of the Proposed Plan (ROG for the City of St. Helena and PM_{10} for the Planning Area, as identified in Tables 3.3-7 and 3.3-8) would exceed BAAQMD's project-level significance thresholds and would contribute to the nonattainment designations of the Air Basin. The Air Basin is currently designated a nonattainment area for California and national O_3, California $PM_{2.5}$, and California PM_{10} AAQS.

Projects that exceed BAAQMD's significance thresholds cumulatively contribute to health impacts in the SFBAAB, such as those discussed under Impact 3.3-2. As shown in Tables 3.3-7, land uses developed under the Proposed Plan would increase emissions of ROG, which is an ozone precursor. Emissions of ROG generated by buildout of the Proposed Plan could increase photochemical reactions and the formation of tropospheric ozone, which, at certain concentrations, could lead to respiratory symptoms (e.g., coughing), decreased lung function, and inflammation of airways. Although these health effects are associated with ozone, the impacts are

a result of cumulative ROG emissions throughout the Bay Area. Accordingly, the incremental contribution of development supported by the Proposed Plan to specific health outcomes related to criteria pollutant emissions would be limited. It is also important to note that growth-related emissions associated with the Proposed Plan would not occur all at once but would instead occur incrementally over time as regional air quality improves and regulations to reduce emissions take effect.

As discussed above, BAAQMD has identified project-level thresholds to evaluate impacts on air quality (Table 3.3-5). The thresholds have been adopted to prevent further deterioration of ambient air quality, which is influenced by emissions generated by projects within a specific air basin. The project-level thresholds, therefore, consider relevant past, present, and reasonably foreseeable future projects within SFBAAB. For example, as noted in BAAQMD's (2017) CEQA Guidelines,

> In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary.

BAAQMD's project-level thresholds do not typically lend themselves well to the analysis of general plans. Rather, it is more appropriate to evaluate planning-level documents for their consistency with the most recently adopted AQAP, which is the 2017 Clean Air Plan for the SFBAAB. As discussed under Impact 3.3-1, the Proposed Plan would support the goals of BAAQMD's 2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation. The comprehensive suite of Proposed Plan policies could reduce the severity of growth-oriented criteria pollutants, relative to conditions without the Proposed Plan.

As discussed under Impact 3.3-2, individual development projects may still generate construction emissions in excess of BAAQMD's project-level thresholds. Implementation of the mitigation measures listed below would ensure that the construction-related impacts of the Proposed Plan on air quality would be reduced to a less-than-significant level. However, operational sources under the Proposed Plan would result in a significant and unavoidable and cumulatively considerable air quality impacts associated with ROG and PM_{10} emissions. Current nonattainment status and projected ROG and PM_{10} emissions at buildout in combination with past, present, and reasonably foreseeable projects elsewhere within the SFBAAB demonstrate that the Proposed Plan, even with implementation of applicable regulations, would result in a significant and unavoidable cumulative impact with respect to air quality and attainment of such standards.

Significance Before Mitigation: Significant

Mitigation Measures

See Mitigation Measures AQ-1, AQ-2, and AQ-3 under Impacts 3.3-1 and 3.3-2.

Significance After Mitigation: Significant and Unavoidable. As discussed under Impact 3.3-2, while policies and mitigation measures would help to reduce ROG and PM emissions as a result of

the Proposed Plan, the increase in these pollutants, as calculated through CalEEMod, would exceed BAAQMD's threshold criteria. As such, the impact remains significant and unavoidable.

Impact 3.3-4 Development under the Proposed Plan would not expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant with Mitigation*)

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

Under existing and future vehicle emission rates, a plan would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited by bridges or tunnels—in order to generate a significant CO impact. Buildout of the Proposed Plan could increase traffic volume and congestion at seven intersections but would not reach the volumes describes above (see Section 3.13, Transportation and Traffic).[5] In addition, buildout of the Proposed Plan would significantly decrease daily operational emissions of CO from mobile sources, counteracting a slight increase in CO from area sources in 2040 (Table 3.3-8). Therefore, the Proposed Plan would not have the potential to substantially increase CO hotspots at intersections in St. Helena.

In order to determine the potential for CO hotspots, BAAQMD considers consistency with the relevant Congestion Management Plan, because congested intersections generate unhealthy concentrations of CO. The Proposed Plan, once adopted, includes policies that would encourage bicycle, pedestrian, and transit use to tie land use and transportation, which ensures consistency with Napa County's CMP (policies LU2.7, LU2.8, LU3.2, LU3.3, LU3.7, LU3.10, ES2.6, PF5.3, CC1.1, CC1.2, CC1.3, CR1.1, CR1.5, CR1.6, CR1.7, CR1.8, CR1.9, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CR3.1, CR3.2, CR3.3, CR3.4, CR3.5, CR3.6, CR4.2, and CR4.5).

Asbestos

Demolition of existing structures results in particulates that may disperse to adjacent sensitive receptor locations. ACMs were commonly used as fireproofing and insulating agents prior to the 1970s. The U.S. Consumer Product Safety Commission banned use of most ACM in 1977 due to their link to mesothelioma. However, buildings constructed prior to 1977 that would be demolished by the development supported by the Proposed Plan may have used ACM and could expose receptors to asbestos, which may become airborne with other particulates during demolition.

[5] Fehr & Peers, 2018

Many buildings that would be considered sensitive receptors, including schools, child care centers, rehabilitation centers, and residences, are located within the City of St. Helena. These facilities are clustered in the center of the city, where most development in St. Helena can be found. Land use change areas under the Proposed Plan, as seen in Figure 2.3-3, are similarly clustered in this area and may be adjacent to sensitive receptors. Figure 3.8-5 shows proposed land use within a quarter mile of schools in St. Helena, which includes Industrial and Agricultural. Additional land use change areas near sensitive receptors could result in demolition of existing structures to accommodate the new land use designations of Mixed-Use, Medium and High Density Residential, and Central Business. If structures to be demolished in this central area used ACM, nearby sensitive receptors could be exposed to asbestos.

However, all demolition activities are subject to EPA's asbestos NESHAP if asbestos is present at the existing facilities. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of ACM. The asbestos NESHAP regulations for demolition and renovation are outlined in BAAQMD Regulation XI, Rule 11-2. Consequently, regulatory mechanisms exist that would ensure that impacts from ACM, if present during demolition under the Proposed Plan, would be less than significant.

Toxic Air Contaminants

Construction

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the State and federal governments as TACs or hazardous air pollutants (HAPs). State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. As examples, TACs include acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and DPM. Some of the TACs are groups of compounds that contain many individual substances (for example, copper compounds and polycyclic organic matter). The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors are spread throughout the city but are highly concentrated in Downtown St. Helena. This portion of the city contains the majority of medium and high density residential land, schools, and facilities such as rehabilitation centers and retirement homes. Development under the Proposed Plan would be concentrated in the downtown area, potentially exposing sensitive receptors clustered around State Route 29 and Downtown St. Helena to diesel particulate emissions from related construction activities.

Off-road diesel construction equipment and heavy-duty diesel trucks (e.g., concrete trucks, building materials delivery trucks), which are sources of diesel exhaust particulate matter, are regulated under three airborne toxic control measures (ATCMs) adopted by CARB. The ATCM for diesel construction equipment specifies particulate matter emission standards for equipment

fleets, which become increasingly stringent over time. Furthermore, most newly-purchased construction equipment introduced into construction fleets after 2013–2015, depending on the engine horsepower rating, are equipped with high-efficiency diesel particulate filters. One of ATCMs for heavy-duty diesel trucks specifies that commercial trucks with a gross vehicle weight rating over 10,000 pounds are prohibited from idling for more than 5 minutes unless the engines are idling while queuing or involved in operational activities. In addition, starting in model year 2008, new heavy-duty trucks must be equipped with an automatic shutoff device to prevent excessive idling or meet stringent NO_x requirements. Lastly, fleets of diesel trucks with a gross vehicle weight rating greater than 14,000 pounds are subject to another ATCM. This ATCM requires truck fleet operators to replace older vehicles and/or equip them with diesel particulate filters, depending on the age of the truck.

Construction activities under the Proposed Plan would be dispersed intermittently over a 22-year period and would not expose an individual to a continuous source of pollution. However, without specific details on the locations of building footprints or their construction schedules, a quantitative evaluation of potential health risk impacts is not possible. Recommended Mitigation Measures AQ-1, AQ-4, AQ-5, and AQ-6 would mitigate air quality impacts from construction as they affect the community and associated health risks. Mitigation Measure AQ-1 addresses construction-related fugitive dust emissions. Mitigation Measure AQ-4 requires development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures. Mitigation Measure AQ-5 requires development projects in proximity to Highway 29, Silverado Trail and the Rail Corridor to include an analysis of mobile source TAC health risks in order to protect sensitive receptors and identify additional mitigation strategies. Mitigation Measure AQ-6 is also identified to provide a project-level evaluation of construction-related health risks from future projects within 1,000 feet of sensitive receptors, consistent with BAAQMD's guidelines.

With implementation of the above mitigation measures, the diesel exhaust particulate matter emissions from off-road construction equipment and trucks will be controlled substantially over the life of the project. Therefore, impacts of construction on sensitive receptors would be less than significant with mitigation.

Operation

STATIONARY SOURCES

When siting new sensitive receptors, the BAAQMD Guidelines advise that lead agencies examine existing or future proposed sources of TAC and/or PM emissions that would adversely affect individuals within the planned project. New residences and sensitive receptors could be located near stationary sources of TACs located throughout the city, such as emergency back-up diesel generators. Without proper setbacks or mitigation measures, these sources could result in TAC or PM levels that would be significant for new sensitive receptors. The 2005 CARB Air Quality and Land Use Handbook: A Community Health Perspective recommends a minimum setback of 1,000 feet between new sensitive land uses and distribution centers with 100 or more daily truck trips. There is only one distribution center in Downtown St. Helena, and two other distribution centers are located in the southeast portion of the Planning Area away from sensitive uses.

The City of St. Helena has several permitted stationary sources. These sources are located throughout the City, but mostly in commercial or semi-rural areas. The majority of sensitive receptors, such as schools, residences, and facilities like retirement homes and rehabilitation centers, are located in the downtown area of the city. The impact of these sources can only be addressed on a project-by-project basis, since impacts are generally localized. To assist lead agencies, BAAQMD has provided a database of permitted sources for each County. The database is contained in a Google Earth tool that allows a user to identify stationary sources within 1,000 feet of a receptor. The database can then be accessed through Google Earth to determine conservative screening levels of cancer risk, hazards, and PM concentrations. This allows many of the sources to be screened out of any additional analysis. Stationary sources that show the potential for significant community risk impacts after this first level of review are further analyzed by contacting BAAQMD for additional information and applying distance adjustment factors. A refined modeling analysis is required if there are sources that still have potentially significant impacts after this level of review. A refined analysis would include dispersion modeling of the source using emissions and source information provided by BAAQMD. If the source still has significant community risk impacts following this level of effort, then risk reduction strategies would have to be implemented by the project on a case-by-case basis.

Mitigation Measure AQ-4 would require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses, or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures. Additionally, Mitigation Measure AQ-3 requires any new use with the potential to generate point source pollution to be referred to the BAAQMD for review and comment prior to adoption. There are also policies within the Proposed Plan (Policy LU4.1 and implementation actions LU4.C, LU5.F, and LU5.H) that evaluate the need for buffers and transitional zones between existing and potential sources of TACs and PM, such as industrial and agricultural uses. With the implementation of these policies and mitigation measures, impacts would be reduced to a less than significant level.

GASOLINE STATIONS

The 2005 CARB Air Quality and Land Use Handbook: A Community Health Perspective recommends a setback of 300 feet for large gasoline dispensing facilities (3.6 million gallons of throughput a year or greater) and 50 feet for typical gas dispensing facilities. The City of St. Helena currently has three gas stations located along State Route 29: Chevron, 76, and Napa Valley Petroleum. A fourth gas station, Flyers, is permanently closed and located outside of the Planning Area. However, none of these gas stations are considered to be a large volume gasoline station. The majority of schools in St. Helena, which are considered sensitive receptors, are located along State Route 29 (Figure 3.8-5). Additionally, the Proposed Plan includes new land use designations of Mixed-Use and High Density Residential near 76 and Napa Valley Petroleum. However, none of these sensitive receptors are located within 50 feet of existing gasoline stations. Mitigation Measure AQ-4 would require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures. Additionally, Mitigation Measure AQ-3 requires any new use with the potential to generate point source pollution to be referred to the BAAQMD for review and comment prior to adoption.

DRY CLEANING FACILITIES

There is one dry cleaning facility in St. Helena, which is located on Main Street over 1,000 feet from the nearest school. Perchlorethylene (Perc) is the solvent used commonly in past dry-cleaning operations. Perc is a TAC because it has the potential to cause cancer. In 2005, CARB recommended setbacks of 300 feet between dry cleaning facilities that emit Perc and sensitive land uses. If two or more machines are in operation, setbacks are greater. Since then, CARB has enacted new rules to substantially reduce Perc emissions and phase out the use of TACs in dry cleaning by 2023. Most of these operations have phased out Perc use and are no longer considered TAC sources. Implementation of Mitigation Measure AQ-4 would require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures. Additionally, Mitigation Measure AQ-3 requires any new use with the potential to generate point source pollution to be referred to BAAQMD for review and comment prior to adoption. New dry cleaning facilities could be constructed in commercial or mixed-use areas in the Proposed Plan. Land adjacent to the current dry cleaning facility or potential future facilities would be designated as Mixed-Use and High Density Residential under implementation of the Proposed Plan. Given existing CARB measures regarding setback and emissions requirements in combination with the recommended mitigation measures, emissions from dry cleaning facilities would have a less than significant impact on sensitive receptors.

EMERGENCY BACK-UP GENERATORS

Electricity generators that are powered by diesel engines are typically located at facilities where uninterrupted electricity is necessary. Diesel engines powering these generators are regulated by BAAQMD and CARB. CARB has established strict emissions limits and operating restrictions for engines larger than 50 horsepower. BAAQMD has developed criteria (Regulation 2 Rule 5) for approval of projects with new or modified emission sources of TACs. As a result, all new engines have very localized impacts and would not be permitted if they would cause significant cancer risks or hazards. Existing engines are only permitted to operate for a maximum of 50 hours per year for maintenance or routine testing.

Stationary sources in the Planning Area were identified using BAAQMD's Stationary Source Screening Analysis Tool, as described above. The BAAQMD data provide the screening risk, hazard and PM2.5 concentration levels associated with each source. Table 3.3-9 identifies the approximate setback distances from stationary sources that have potentially significant impacts using the screening data provided by BAAQMD and the Risk and Hazards Emissions Screening Calculator (Beta Version) tool. However, refined analysis of the effects from these sources through emissions and dispersion modeling would likely show lower TAC exposure.

Table 3.3-9: Approximate Screening Setback Distances for Stationary TAC Sources

Source	*Distance in Feet to Cancer Risk Threshold*	*Distance in Feet to PM2.5 Threshold*
Pacific Bell, generator, Plant 13512 1240 Oak	175	<10
Nella Oil, Gasoline Station Plant G10941 800	100	0
Saint Helena Chevron, Gasoline Station, Plant G11858 1400 Main Street	170	0
St Helena Petroleum, Gasoline Station Plant G8851 1153 main Street	140	0

Source: Illingworth & Rodkin, 2016

HIGHWAY AND ROADWAY TRAFFIC

CARB recommends that new sensitive land uses should be setback at least 500 feet from the following: a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. State Route 29 is not classified as a freeway[6] and the vehicles/day on the urban and rural roads in the city do not exceed CARB's thresholds. Buildout of the Proposed Plan could increase traffic volume and congestion at seven intersections but would not reach the volumes describes above (see Section 3.13, Transportation and Traffic).[7]

The BAAQMD *Highway Screening Analysis Tool* and the *Roadway Screening Analysis Calculator* were used to predict screening distances along busy roadways in St. Helena in terms of cancer risk and $PM_{2.5}$ exposure. Table 3.3-10 identifies the approximate setback distances from highway sources that have potentially significant impacts, using the data provided by BAAQMD. However, refined analysis of the effects from these sources through emissions and dispersion modeling would likely show lower TAC exposure. Mitigation Measure AQ-5 requires discretionary projects in proximity to Highway 29, Silverado Trail, and the Rail Corridor to include an analysis of mobile source TAC health risks and identify feasible mitigation measures to reduce health risks to acceptable levels.

[6] A freeway is a highway where access to the roadway is controlled. Drivers can only enter a controlled-access highway by ramps. Traffic traveling in opposite directions is usually separated by a median, and vehicles wanting to cross a freeway must use an overpass or underpass. Freeways are usually in an urban setting and have higher speed limits.

[7] Fehr & Peers, 2018

Table 3.3-10: Screening Setback Distances for Roadway TAC Sources

Source	*Distance in Feet to Cancer Risk Threshold*	*Distance in Feet to PM2.5 Threshold*
Highway 29	75	<10
Silverado Trail (assumed ADT of 12,000)	40	<10

Source: Illingworth & Rodkin, 2016

In conclusion, the Proposed Plan would allow growth of new residential land uses that would be sensitive receptors and new non-residential land uses that are a potential for new emissions sources. Typically, these sources would be evaluated through the BAAQMD permit process and/or the CEQA process to identify and mitigate any significant exposures. Additionally, policies within the Proposed Plan aim to establish buffers between potential air pollution sources and sensitive receptors, as well as limit pollution during construction. Mitigation Measures AQ-1, AQ-2, AQ-3, AQ-4, AQ-5, and AQ-6 are recommended to reduce potential impacts on sensitive receptors. Specifically, Mitigation Measure AQ-6 is consistent with BAAQMD's guidelines to include a requirement for health risk assessment for all projects within 1,000 feet of existing sensitive receptors. Therefore, the potential future increases in TAC or PM, and their impacts on sensitive receptors, would be considered less than significant with mitigation.

Significance Before Mitigation: Significant

Mitigation Measures

Mitigation Measures AQ-1, AQ-2, and AQ-3, as listed under Impacts 3.3-1 and 3.3-2, as well as the following measures:

AQ-4: Require development projects to meet CARB setback recommendations from air contaminant sources for sensitive uses, or conduct specific air quality and health risk impact analyses and identify project specific mitigation measures.

AQ-5 : To protect sensitive receptors require discretionary projects in proximity to Highway 29, Silverado Trail and the Rail Corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels

AQ-6: All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by BAAQMD, shall prepare a site-specific construction health risk assessment (HRA) taking into account both project-level and cumulative health risks (including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and

offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable.

Significance After Mitigation: Less than Significant with Mitigation. While development allowable under the Proposed Plan could expose sensitive receptors, especially residents, to air pollution, policies and implementing actions reduce the conflict of land uses through the use of buffers, as well as the reduction of air pollution. While these policies and actions alone could not sufficiently guarantee no significant impact, introduction of mitigation measures that set specific buffers between land uses as recommended by CARB and BAAQMD, as well as additional studies for projects located along SR-29 and Silverado Trail, are sufficient to reduce impacts to a less-than-significant after mitigation.

Impact 3.3-5 Development under the Proposed Plan would not create objectionable odors affecting a substantial number of people. (*Less than Significant*)

Potential impacts could occur if new sources of objectionable odors are placed near sensitive receptors. Objectionable odors can be generated from certain types of commercial and/or industrial land uses. In general, residential land uses are not associated with odor generation, but they do serve as sensitive receptors. Common sources of odors within St. Helena come from farming operations, wine production (crushing and fermenting grapes), restaurants, auto body shops, and waste treatment facilities. Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and BAAQMD. A significant impact would occur if development under the Proposed Plan introduced new sources of odor that would be offensive to a substantial portion of the population within the Planning Area.

The BAAQMD CEQA Guidelines recommendation for assessing plan level odor impacts is to "identify the location of existing and planned odor sources in the plan and identify goals, policies, and objectives to minimize potentially adverse impacts in the plan." There are no identified sources of odors that result in frequent odor complaints in St. Helena. However, localized odor sources could create complaints if new development as a result of implementation of the Proposed Plan increased the number of residents placed in close proximity to these odor sources. An example would be new residences built next to a restaurant or coffee shop that has on-site coffee roasting. This type of conflict can result in odor complaints that could be avoided during project planning but would only be considered a significant impact if the odor affected a substantial number of people rather than individual taste.

Buildout permitted under the Proposed Plan could include new sources of odors, such as composting; food processing; wine production; and painting/coating operations, because these are permitted uses in the commercial and/or industrial areas in the Planning Area. Schools within the Planning Area, seen in Figure 2.3-3, are in the vicinity of, but not directly adjacent to, land designated as industrial and agricultural. Future environmental review could be required for industrial projects to ensure that sensitive land uses are not exposed to objectionable odors. Additionally, the City's Municipal Code adopted California Green Building Code standards regarding VOC content for architectural coatings, adhesives, and sealants, which would minimize odor impacts from construction and operation.

BAAQMD Regulation 7, Odorous Substances, requires abatement of any nuisance generating an odor complaint. Typical abatement includes passing air through a drying agent followed by two successive beds of activated carbon to render air odor free. The Proposed Plan update includes policies and implementing actions to discourage the siting of residential uses and sensitive receptors in close proximity to sources of odors. Implementing Action PS1.J requires that the potential for sources of odors that includes restaurants, auto body shops, or waste treatment facilities shall be considered when evaluating proposed residential projects and projects with sensitive recipients.

Review of development under the Proposed Plan using BAAQMD's odor screening distances during future CEQA review, policies and implementing actions in the Proposed Plan, and compliance with BAAQMD Regulation 7 and California Green Building Code would discourage siting sensitive receptors in proximity to odor sources, thus ensuring that odor impacts are minimized and are less than significant.

Mitigation Measures

None required.

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3.4 Biological Resources

This section assesses potential environmental impacts on existing biological resources from future development under the Proposed Plan, including those related to sensitive species and/or habitats, riparian or streamside resources under the jurisdiction of federal or State agencies, and adopted regulations or policies. The section describes biological resources in the Planning Area, including habitats, wetlands, critical habitat, and special-status species, as well as relevant federal, State, and local regulations and programs.

There was one comment on the NOP related to biological resources. The commenter requested that the impacts of new development in the industrial area located on the southeast side of the city be considered relative to biological resources and nearby riparian areas. Impacts of new development throughout the city on biological resources are discussed in the impact analysis below.

Environmental Setting

PHYSICAL SETTING

Habitat Types

St. Helena is characterized by a mix of urban development and agricultural uses with some undeveloped wooded hillsides to the east and west of the city center and wooded hillsides interspersed with residential development to the west of the city center. The Napa River and a narrow band of associated riparian vegetation form a large portion of the eastern and northern boundaries of the city. York Creek and Sulphur Creek flow from the hills west of the city, through the city and surrounding agricultural lands, and join the Napa River within the city limits.

Urbanization and extensive agricultural use limit the extent of native vegetation communities and associated high-quality wildlife habitats within St. Helena. The remaining vegetation communities dominated by native plants occur within the undeveloped lands in the hillsides to the east and west of the city, and within the stream and river corridors traversing the valley floor. The value of an area to wildlife depends on a number of physical and biological factors, including the quality of the remaining habitat and extent of protective cover, location relative to other land uses, and the uniqueness of the habitat within a regional context.

The following habitat types have been mapped within the Planning Area by the California Department of Fish and Wildlife (CDFW) as of April 2018. These classifications and descriptions are taken from the California Wildlife Habitat Relationships System (CWHR System) and identify vegetative communities and potentially associated wildlife. While each classification may not be

completely accurate in identifying exact species or conditions on the ground, they do provide useful information on what is likely to be found, as well as a starting point for further site-specific study for individual projects. Habitat types are shown in Figure 3.4-1: Habitat Types.

Annual Grassland

Annual Grassland is mapped on approximately 52 acres within the Planning Area, including portions along Sulphur Creek and the western edge of the city. Annual Grassland habitats are open grasslands composed primarily of annual plant species. Introduced annual grasses are the dominant plant species in this habitat, and can include species such as wild oats, brome grasses, and others, as well as forbs and perennial grasses. Different species of wildlife and plants benefit from different grazing intensities or mowing regimes, and frequencies of burning. Annual grasslands can be extremely productive wildlife habitats, providing abundant seed and insects as a food source for small mammals and birds, which in turn provide prey for numerous raptors and other predators. A variety of reptiles and mammals are characteristic of grassland habitats. These species include western fence lizard, common garter, gopher snake black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, and coyote. Common birds that breed in or near grassland habitats include western kingbird, loggerhead shrike, California horned lark, Savannah sparrow, western bluebird, Say's phoebe, and western meadowlark. Grasslands also provide important foraging habitat for a number of raptors, including golden eagle, northern harrier American kestrel, white-tailed kite, red-tailed hawk, and wintering ferruginous.

Blue Oak-Foothill Pine

The Blue Oak-Foothill Pine habitat type is mapped on three acres in the Planning Area, along the western edge of the city near Palmer Drive. This habitat is typically diverse in structure with a mix of hardwoods, conifers, and shrubs. The overstory is typically composed of blue oak and foothill pine, with blue oak usually most abundant. Blue Oak-Foothill Pine woodlands provide breeding habitats for a large variety of wildlife species, although no species is totally dependent on them for breeding, feeding, or cover. Most species breed during late winter and early spring. Snags are less common, and hence less critical to wildlife, in this than in other forest types. Most species of cavity-nesting birds, for example, use living oaks. The cavities are often in scars where limbs have broken from the trunk or a main branch and have developed a level of decay that makes them more easily excavated by primary cavity nesters.

Blue Oak Woodland

Blue Oak Woodland is mapped on 70 acres in the Planning Area, at the northwestern edge along State Route 29 (SR-29) and in the northeast along Howell Mountain Road. Blue oak is the dominant species of this habitat type, comprising 85 to 100 percent of the trees present. Previous studies of Blue Oak Woodland in California have found that 29 species of amphibians and reptiles, 57 species of birds, and 10 species of mammals find mature stages of this type suitable or optimum for breeding, assuming that other special habitat requirements are met.

Chamise-Redshank Chaparral

Chamise-Redshank Chaparral is mapped on 12 acres in the Planning Area, in the city along the Silverado Trail and in Study Area 1. Chamise-Redshank Chaparral may consist of nearly pure

stands of chamise or redshank, a mixture of both, or with other shrubs. The primary land management consideration for this habitat type is selection of alternative fire management treatments. Long-term fire suppression can lead to stand senescence and declines in deer, small mammals, birds, and reptiles. Most animal populations reach peak densities in the first two or three decades, frequently 1 to 15 years, after a fire.

Coastal Oak Woodland

Coastal Oak Woodland is mapped on 110 acres in the Planning Area, primarily north of the Napa River. Coastal oak woodlands are extremely variable. The overstory consists of deciduous and evergreen hardwoods sometimes mixed with scattered conifers. Composition of both overstory trees and understory of coastal oak woodland varies and reflects the environmental diversity over which this habitat occurs. Typical understory plants in dense coast live oak woodlands are shade tolerant shrubs such as California blackberry, creeping snowberry, toyon, and herbaceous plants such as bracken fern, California polypody, fiesta flower, and miner's lettuce. Where coast live oak woodlands intergrade with chaparral, species such as greenleaf manzanita, chamise, gooseberries, currants, and ceanothus species form the understory. Coastal oak woodlands provide habitat for a variety of wildlife species. Quail, turkeys, squirrels, and deer may be so dependent on acorns in fall and early winter that a poor acorn year can result in significant declines in their populations.

Douglas-Fir

Douglas-Fir is mapped on 169 acres in the Planning Area, mainly on the southwestern edge of the city and north of the Napa River. This habitat type supports a high abundance of wildlife species. Bird species typical of this habitat type include spotted owl, western flycatcher, chestnut-backed chickadee, golden-crowned kinglet, Hutton's vireo, solitary vireo, hermit warbler, and varied thrush. Among amphibians and reptiles, the distributions of northwestern salamander, Pacific giant salamander, Olympic salamander, Del Norte salamander, black salamander, clouded salamander, tailed frog, and northwestern garter snake are largely coincident with the distribution of Douglas-fir habitat. Although not restricted to this habitat, the ensatina is its most abundant amphibian. Typical mammals include fisher, deer mouse, dusky-footed woodrat western redbacked vole, creeping vole, Douglas' squirrel, Trowbridge's shrew, and shrew-mole.

Eucalyptus

Eucalyptus is mapped on 6 acres in the Planning Area, along the west side of SR-29 north of York Creek. Eucalyptus habitats range from single-species thickets with little or no shrubby understory to scattered trees over a well-developed herbaceous and shrubby understory. Characteristic species of this habitat include crow, raven, barn owl, and red-tailed and red-shouldered hawks. Eucalyptus are important as roosts, perches, and nest sites for a number of bird species, particularly raptors. Those eucalyptus with stringy bark or a tendency for rapid deposition of litter, create micro habitats for a number of small vertebrate species, including alligator lizard, gopher snake, and woodrat.

Mixed Chaparral

Mixed Chaparral is mapped on 20 acres in the Planning Area, mainly in Study Area 1 with a small area on the western edge of the city along York Creek. Mixed Chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen

leaves. No wildlife species are restricted to Mixed Chaparral. Most species are found in other shrub-dominated types, including Chamise-Redshank Chaparral, or the shrubs beneath several woodland and forest types. Wildlife management considerations usually focus on selecting alternative fire management treatments. Potential impacts of management actions in Mixed Chaparral generally are similar to Chamise-Redshank Chaparral.

Montane Hardwood

Montane Hardwood is mapped on 177 acres in the Planning Area, along the western edge of the city and along Howell Mountain Road in the northeast. A typical montane hardwood habitat is composed of a pronounced hardwood tree layer, with an infrequent and poorly developed shrub stratum, and a sparse herbaceous layer. Bird and animal species characteristic of the Montane Hardwood habitat type include disseminators of acorns (scrub and Steller's jays, acorn woodpecker, and western gray squirrel) plus those that utilize acorns as a major food source wild turkey, mountain quail, band-tailed pigeon, California ground squirrel, dusky-footed woodrat, black bear, and mule deer. Deer also use the foliage of several hardwoods to a moderate extent. Many amphibians and reptiles are found on the forest floor in the Montane Hardwood habitat. Among them are Mount Lyell salamander, ensatina, relictual slender salamander, western fence lizard, and sagebrush lizard. Snakes include rubber boa, western rattlesnake, California mountain kingsnake, and sharp tailed snake.

Montane Riparian

Montane Riparian is mapped on 130 acres in the Planning Area, along the creeks and river, at the northwestern edge of the city, and north of Howell Mountain Road in the northeast. The vegetation of montane riparian zones is quite variable and often structurally diverse. Usually, the montane riparian zone occurs as a narrow, often dense grove of broad-leaved, winter deciduous trees up to 30 m (98 ft) tall with a sparse understory. All riparian habitats have an exceptionally high value for many wildlife species. Such areas provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities. The range of wildlife that uses the Montane Riparian habitat for food, cover and reproduction include amphibians, reptiles, birds and mammals.

Orchard-Vineyard

Orchard-Vineyard has the greatest coverage in the Planning Area, mapped on 1,385 acres throughout the city and Study Area 1. In the Planning Area, this habitat type is made up primarily of vineyards. Vineyards are composed of single species planted in rows, usually supported on wood and wire trellises. Vines are normally intertwined in the rows but open between rows. Rows under the vines are usually sprayed with herbicides to prevent growth of herbaceous plants. Between rows of vines, grasses and other herbaceous plants may be planted or allowed to grow as a cover crop to control erosion. Some species of birds and mammals have adapted to the vineyard habitats. Many have become “agricultural pests” which has resulted in intensive efforts to reduce crop losses through fencing, sound guns, or other management techniques. Wildlife such as deer and rabbits browse on the trees or vines; other wildlife such as squirrels and numerous birds feed on fruit or nuts. Some wildlife (e.g., mourning dove, California quail) are more passive in their use of the habitat for cover and nesting sites.

Urban

Urban areas are mapped on 1,391 acres in the Planning Area, covering the developed portions of the city and study areas. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves, common in city parks, green belts, and cemeteries, vary in height, tree spacing, crown shape, and understory conditions, depending upon the species planted and the planting design. However, they have a continuous canopy. Street tree strips show variation in spacing of trees, depending upon species and design considerations. Shade trees and lawns are typical of residential areas and reminiscent of natural savannas. Structural variation in the shade tree/lawn type is typical when a large number of species are incorporated in the landscape. Lawns are structurally the most uniform vegetative units of the California urban habitat. A variety of grass species are employed, which are maintained at a uniform height and continuous ground cover. The juxtaposition of urban vegetation types within cities produces a rich mosaic with considerable edge areas. The overall mosaic may be more valuable as wildlife habitat than the individual units in that mosaic.

Valley Oak Woodland

Valley Oak Woodland is mapped on 5 acres in the Planning Area, near the western edge of the city. This habitat type varies from savanna-like to forest-like stands with partially closed canopies, comprising mostly winter-deciduous, broad-leaved species. These woodlands provide food and cover for many species of wildlife. Oaks have long been considered important to some birds and mammals as a food resource (i.e., acorns and browse). Previous studies of the habitat type found that many bird species include acorns in their diet or use oak habitats for breeding; and that the ranges of about 80 mammal species overlap with valley oaks, and that several use valley oaks for food and shelter.

Special-Status Species

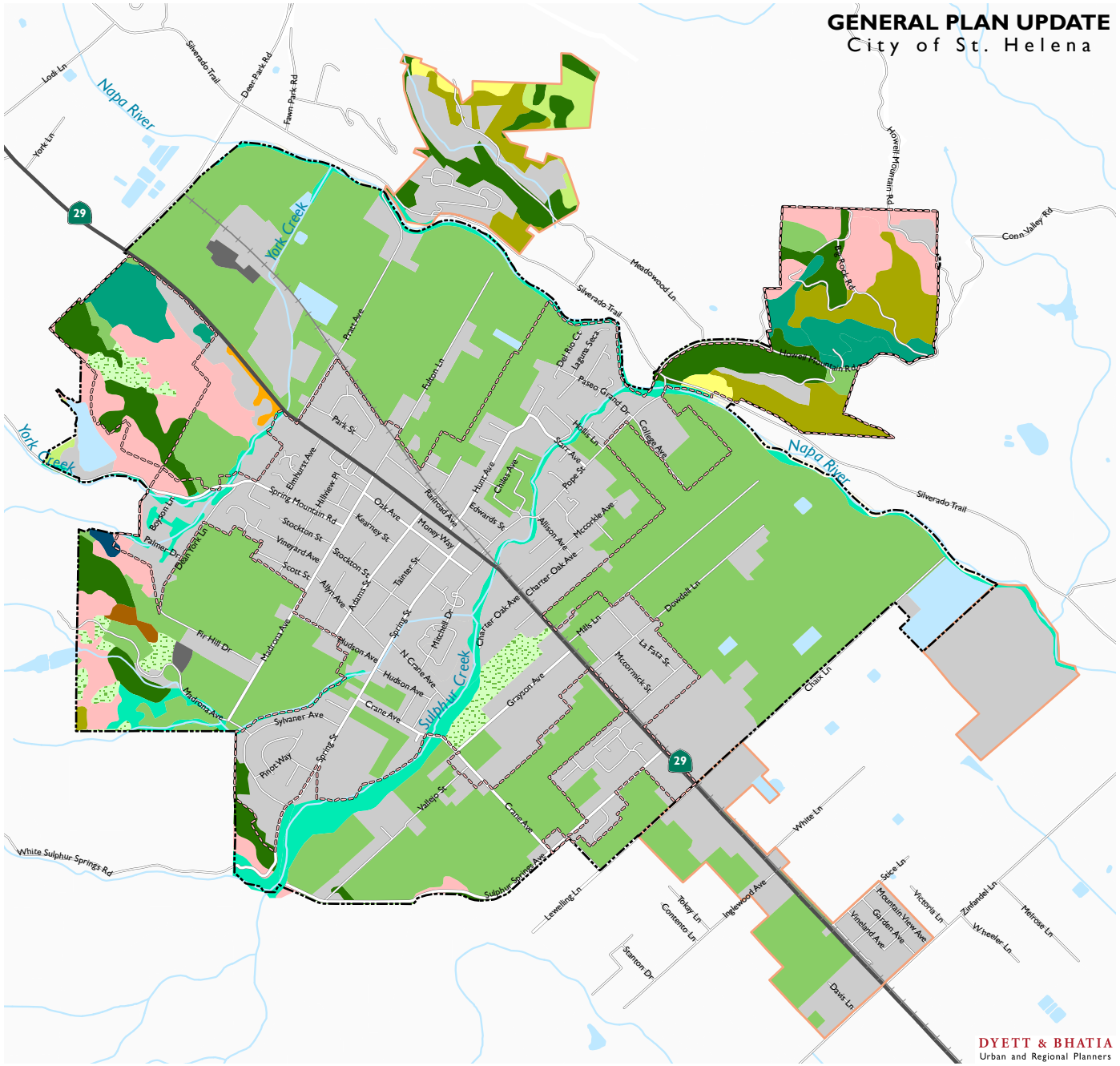
Special-status species are those plants and animals that, because of their acknowledged rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, State, or other agencies as deserving special consideration. The California Natural Diversity Database (CNDDB) was used to identify special-status species with the potential to occur in the Planning Area based on previously reported occurrences of special-status species within five miles of the Planning Area. The CNDDB is an inventory of the status and locations of rare plants and animals in California maintained by CDFW. Figure 3.4-2: Critical Habitats and Special-Status Species shows a generalized range for where special-status species known to occur in the Planning Area have previously been sighted.

The CNDDB is regularly updated to track occurrences of previously documented special-status species; however, it contains only those records that have been submitted to CDFW. Thus, there may be additional occurrences of special-status species within this area that have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area does not imply that the species does not occur or that there is a lack of diversity in that area. Additionally, species shown in Figure 3.4-2 have the potential to occur outside of the area delineated in the figure.

Figure 3.4-1

Habitat Types

- Annual Grassland
- Mixed Chaparral
- Chamise-Redshank Chaparral
- Orchard-Vineyard
- Blue Oak Woodland
- Coastal Oak Woodland
- Valley Oak Woodland
- Eucalyptus
- Montane Hardwood
- Blue Oak-Foothill Pine
- Douglas-Fir
- Montane Riparian
- Urban
- Unknown
- Water Features
- Railroad
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; CA Department of Fish and Wildlife, Napa County and Blueridge Berryessa Dataset, 2018; Dyett & Bhatia, 2018

DYETT & BHATIA
Urban and Regional Planners

Figure 3.4-2

Special Species Status Occurences

Plant

- Accuracy Class 1
- Accuracy Class 2
- Accuracy Class 3
- Accuracy Class 4-9

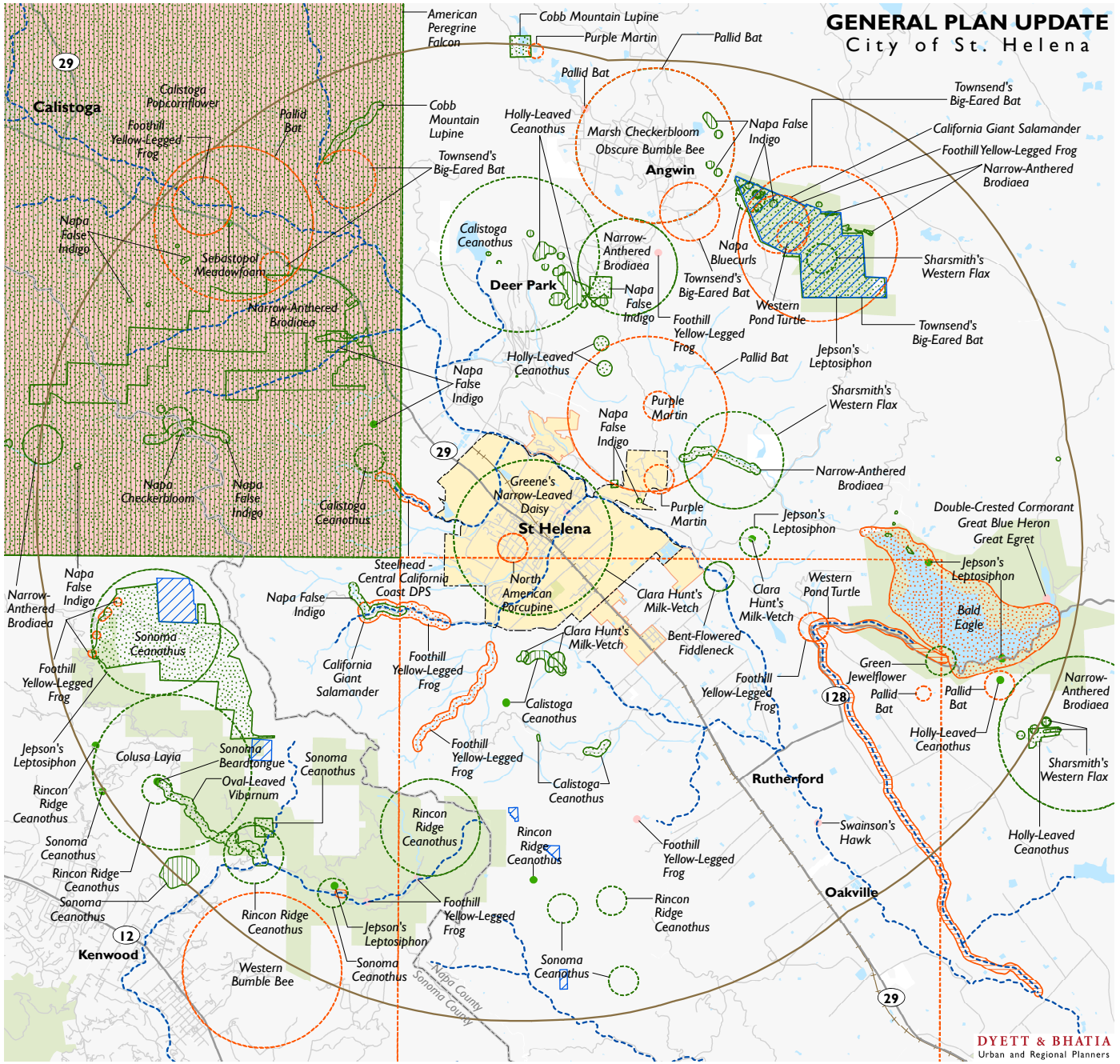
Animal

- Accuracy Class 1
- Accuracy Class 2
- Accuracy Class 3
- Accuracy Class 4-9

USFWS Critical Habitat

- Steelhead
- Northern Spotted Owl

- Roadways
- Railroad
- Water Features
- City of St. Helena
- Study Areas
- Approximate 5-mile Buffer of Planning Area



Disclaimer: Information presented in this map is based on data from CNDDB verson 03/2018. Areas of occurence on this map represent areas in which known locations of the species listed here have been found as of the date of this version. There may be additional occurences of additional species within this area which have not been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special species occur in an area.

CNDDB can be contacted for more information about these occurences.

0 4,000 8,000 16,000 Feet

Data Source: City of St. Helena, 2018; Napa County, 2018; CNDDB, 2018; U.S. Fish and Widlife Service, 2018; Dyett & Bhatia, 2018

Special-Status Animal Species

Table 3.4-1 lists special-status animal species mapped with previously reported occurrences within five miles of the Planning Area, based on a search of the CNDDB conducted in July 2018. The CNDDB lists 17 animal species, including one species listed as Threatened under the Federal Endangered Species Act (FESA), and three species listed under the California Endangered Species Act (CESA) as Endangered, Threatened, or Candidate Threatened.

Table 3.4-1: CNDDB Special-Status Animal Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*Other Status[2]*	*Habitat*
Amphibians				
California giant salamander (*Dicamptodon ensatus*)	None/None	G3/S2S3	CDFW:SSC IUCN:NT	Usually found in cool, moist, forest habitat and associated with rocky streams and springs.
Foothill yellow-legged frog (*Rana boylii*)	None/ Candidate Threatened	G3/S3	BLM:S CDFW:SSC IUCN:NT USFS:S	Found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, mixed chaparral
Birds				
Great egret (*Ardea alba*)	None/None	G5/S4	CDF:S IUCN:LC	Requires groves of trees suitable for nesting and roosting, relatively isolated from human activities, near aquatic foraging areas. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.
Great blue heron (*Ardea Herodias*)	None/None	G5/S4	CDF:S IUCN:LC	Common in in shallow estuaries and fresh and saline emergent wetlands. For nesting, prefers secluded groves of tall trees near shallow-water feeding areas.
Swainson's hawk (*Buteo swainsoni*)	None/ Threatened	G5/S3	BLM:S IUCN:LC USFWS:BCC	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves.

Table 3.4-1: CNDDB Special-Status Animal Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank*[1]	*Other Status*[2]	*Habitat*
American peregrine falcon (*Falco peregrinus anatum*)	Delisted/ Delisted	G4T4/S3S4	CDF:S CDFW:FP USFWS:BCC	Frequents bodies of water in open areas with cliffs and canyons nearby for cover and nesting.
Bald eagle (*Haliaeetus leucocephalus*)	Delisted/ Endangered	G5/S3	BLM:S CDF:S CDFW:FP IUCN:LC USFS:S USFWS:BCC	Requires large, old-growth trees or snags in remote, mixed stands near water.
Double-crested cormorant (*Phalacrocorax auratus*)	None/None	G5/S4	CDFW:WL IUCN:LC	Found along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters.
Purple martin (Progne subis)	None/None	G5/S3	CDFW:SSC IUCN:LC	Frequents old-growth, multi-layered, open forest and woodland with snags in breeding season. Forages over riparian areas, forest, and woodland. Found in a variety of open habitats in migration.
Fish				
Steelhead – central California coast (Oncorhynchus mykiss irideus pop. 8)	Threatened/ None	G5T2T3Q/S2S3	AFS:TH	Inhabits riparian, emergent, palustrine habitat. Spawning and rearing habitat is usually characterized by perennial streams with clear, cool to cold, fast-flowing water with a high dissolved-oxygen content and abundant gravels and riffles.
Mammals				
Pallid bat (Antrozous pallidus)	None/None	G5/S3	BLM:S CDFW:SSC IUCN:LC USFS:S WBWG:H	Occupies a wide variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.

Table 3.4-1: CNDDB Special-Status Animal Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank*[1]	*Other Status*[2]	*Habitat*
Townsend's big-eared bat (Corynorhinus townsendii)	None/None	G3G4/S2	BLM:S CDFW:SSC IUCN:LC USFS:S WBWG:H	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting.
North American porcupine (Erethizon dorsatum)	None/None	G5/S3	IUCN:LC	Requires forest with a good understory of herbs, grasses, and shrubs. Prefers open stands of conifers. In spring and summer, uses meadows, brushy and riparian habitats for feeding. In winter, restricted to forests.
Fringed myotis (Myotis thysanodes)	None/None	G4/S3	BLM:S IUCN:LC USFS:S WBWG:H	Uses open habitats, early successional stages, streams, lakes, and ponds as foraging areas.
Insects				
Obscure bumble bee (Bombus caliginosus)	None/None	G4?/S1S2	IUCN:VU	Inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests.
Western bumble bee (Bombus occidentalis)	None/None	G2G3/S1	USFS:S XERCES:IM	Found in open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows.
Reptiles				
Western pond turtle (Emys marmorata)	None/None	G3G4/S3	BLM:S CDFW:SSC IUCN:VU USFS:S	Associated with permanent or nearly permanent water in a wide variety of habitats.

Notes:

1. The global rank (G-rank) is a reflection of the overall status of an element throughout its global range. The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries. Uncertainty about a rank is expressed as a range of values or by adding a "?" to the rank. A "?" represents more certainty than a range.
   G1/S1 = Critically Imperiled; G2/S2 = Imperiled; G3/S3 = Vulnerable; G4/S4 = Apparently Secure; G5/S5 = Secure; T = Rank applies to a subspecies or variety; Q = There are taxonomic questions associated with the element.

Table 3.4-1: CNDDB Special-Status Animal Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*Other Status[2]*	*Habitat*
2. AFS: TH = Threatened by the American Fisheries Society; BLM: S = Sensitive by the Bureau of Land Management; CDF: S = Sensitive by the California Department of Forestry and Fire Protection; CDFW: FP = Fully Protected by the California Department of Fish and Wildlife; CDFW: SSC = California Department of Fish and Wildlife Species of Special Concern; CDFW: WL = California Department of Fish and Wildlife Watch List; IUCN: LC = Least Concern by the International Union for Conservation of Nature; IUCN: NT = Nearly Threatened by the International Union for Conservation of Nature; IUCN: VU = Vulnerable by the International Union for Conservation of Nature; USFS: S = Sensitive by the United States Forest Service; USFWS: BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern; WBWG: H = Western Bat Working Group High Priority; XERCES: IM = Imperiled by the Xerces Society.				

Sources: CNDDB, 2018; CDFW, 2018; CWHR, 2018

Special-Status Plant Species

Table 3.4-2 lists special-status plant species mapped with previously reported occurrences within five miles of the Planning Area, based on a search of the CNDDB. The CNDDB lists 21 plant species, including three species listed as endangered under the FESA and threatened or endangered under the CESA.

Table 3.4-2: CNDDB Special-Status Plant Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*California Rare Plant Rank[2]*	*Other Status[3]*	*Habitat and Blooming Period*
Bent-flowered fiddleneck (Amsinckia lunaris)	None/None	G2G3/S2S3	1B.2	BLM:S	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland; elevation 3 to 500 meters; blooming period March to June
Calistoga ceanothus (Ceanothus divergens)	None/None	G2/S2	1B.2	BLM:S	Perennial evergreen shrub found in chaparral; elevation 170 to 950 meters; blooming period February to April
Calistoga popcornflower (Plagiobothrys strictus)	Endangered/ Threatened	G1/S1	1B.1	--	Annual herb found in alkaline areas near thermal springs in meadows and seeps, valley and foothill grassland, and vernal pools; elevation 90 to

Table 3.4-2: CNDDB Special-Status Plant Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*California Rare Plant Rank[2]*	*Other Status[3]*	*Habitat and Blooming Period*
					160 meters; blooming period March to June
Clara Hunt's milk-vetch (Astragalus claranus)	Endangered/ Threatened	G1/S1	1B.1	--	Annual herb found in serpentinite or volcanic, rocky, and clay habitat in chaparral, cismontane woodland, and valley and foothill grassland; elevation 75 to 275 meters; blooming period March to May
Cobb Mountain lupine (Lupinus sericatus)	None/None	G2?/S2?	1B.2	BLM:S	Perennial herb found in broadleafed upland forest, chaparral, cismontane woodland, and lower montane coniferous forest; elevation 275 to 1,525 meters; blooming period March to June
Colusa layia (Layia septentrionalis)	None/None	G2/S2	1B.2	BLM:S	Annual herb found in sandy, serpentinite habitats in chaparral, cismontane woodland, and valley and foothill grassland; elevation 100 to 1,095 meters; blooming period April to May
green jewelflower (Streptanthus hesperidis)	None/None	G2/S2	1B.2	--	Annual herb found in serpentinite, rocky habitats in chaparral and cismontane woodland; elevation 130 to 760 meters; blooming period May to July
Greene's narrow-leaved daisy (Erigeron greenei)	None/None	G3/S3	1B.2	--	Perennial herb found in chaparral; elevation 80 to 1,005 meters; blooming period May to September

Table 3.4-2: CNDDB Special-Status Plant Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*California Rare Plant Rank[2]*	*Other Status[3]*	*Habitat and Blooming Period*
holly-leaved ceanothus (Ceanothus purpureus)	None/None	G2/S2	1B.2	--	Perennial evergreen shrub found in volcanic, rocky habitat in chaparral and cismontane woodland; elevation 120 to 640 meters; blooming period February to June
Jepson's leptosiphon (Leptosiphon jepsonii)	None/None	G3/S3	1B.2	--	Annual herb found in chaparral, cismontane woodland, and valley and foothill grassland; elevation 100 to 500 meters; blooming period March to May
marsh checkerbloom (Sidalcea oregana ssp. hydrophila)	None/None	G5T2/S2	1B.2	--	Perennial herb found in mesic habitats in meadows and seeps, and riparian forest; elevation 1,100 to 2,300 meters; blooming period (June) July to August
Napa bluecurls (Trichostema ruygtii)	None/None	G1G2/S1S2	1B.2	--	Annual herb found in chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, and vernal pools; elevation 30 to 680 meters; blooming period June to October
Napa checkerbloom (Sidalcea hickmanii ssp. napensis)	None/None	G3T1/S1	1B.1	--	Perennial herb found in chaparral; elevation 415 to 610 meters; blooming period April to June
Napa false indigo (Amorpha californica var. napensis)	None/None	G4T2/S2	1B.2	--	Perennial deciduous shrub found in broadleafed upland forest, chaparral, and cismontane woodland; elevation 120 to 2,000

Table 3.4-2: CNDDB Special-Status Plant Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*California Rare Plant Rank[2]*	*Other Status[3]*	*Habitat and Blooming Period*
					meters; blooming period April to June
narrow-anthered brodiaea (Brodiaea leptandra)	None/None	G3?/S3?	1B.2	--	Perennial bulbiferous herb found in volcanic habitats in broadleafed updand forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland; elevation 110 to 915 meters; blooming period May to July
oval-leaved viburnum (Viburnum ellipticum)	None/None	G4S5/S3?	2B.3	--	Perennial deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest; elevation 215 to 1,400 meters; blooming period May to June
Rincon Ridge ceanothus (Ceanothus confuses)	None/None	G1/S1	1B.1	BLM:S	Perennial evergreen shrub found in volcanic or serpentinite habitats in closed-cone coniferous forest, chaparral, and cismontane woodland; elevation 75 to 1,065 meters; blooming period February to June
Sebastopol meadowfoam (Limnanthes vinculans)	Endangered/ Endangered	G1/S1	1B.1	--	Annual herb found in vernally mesic habitats in meadows and seeps, valley and foothill grassland, and vernal pools; elevation 15 to 305 meters; blooming period April to May
Sharsmith's western flax (Hesperolinon sharsmithiae)	None/None	G2Q/S2	1B.2	BLM:S	Annual herb found in serpentinite chaparral; elevation 270 to 300

Table 3.4-2: CNDDB Special-Status Plant Species

Common Name (Scientific Name)	*Federal/State Status*	*Rank[1]*	*California Rare Plant Rank[2]*	*Other Status[3]*	*Habitat and Blooming Period*
					meters; blooming period May to July
Sonoma beardtongue (Penstemon newberryi var. sonomensis)	None/None	G4T2/S2	1B.3	--	Perennial herb found in rocky chaparral; elevation 700 to 1,370 meters; blooming period April to August
Sonoma ceanothus (Ceanothus sonomensis)	None/None	G2/S2	1B.2	--	Perennial evergreen shrub found in sandy, serpentinite, or volcanic chaparral; elevation 215 to 800 meters; blooming period February to April

Notes:

1. The global rank (G-rank) is a reflection of the overall status of an element throughout its global range. The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries. Uncertainty about a rank is expressed as a range of values or by adding a "?" to the rank. A "?" represents more certainty than a range.

   G1/S1 = Critically Imperiled; G2/S2 = Imperiled; G3/S3 = Vulnerable; G4/S4 = Apparently Secure; G5/S5 = Secure; T = Rank applies to a subspecies or variety; Q = There are taxonomic questions associated with the element.
2. 1A = Presumed extirpated in California and either rare or extinct elsewhere; 1B = Rare or Endangered in California and elsewhere; 2A = Presumed extirpated in California, but more common elsewhere; 2B = Rare or Endangered in California, but more common elsewhere; 3 = Plants for which we need more information – Review list; 4 = Plants of limited distribution – Watch list.

   The California Rare Plant Ranks (CRPR) use a decimal-style threat rank. The threat rank is an extension added onto the CRPR and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. .1 = Seriously threatened in California (over 80% of occurrences threatened); .2 = Moderately threatened in California (20-80% of occurrences threatened); .3 = Not very threatened in California (<20% of occurrences threatened).
3. BLM: S = Sensitive by the Bureau of Land Management.

Sources: CNDDB, 2018; CDFW, 2018; CNPS, 2018

Sensitive Habitats

Critical Habitat

Critical habitat is defined by the Endangered Species Act as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. All stretches of the Napa River, York Creek, and Sulphur Creek in and within five miles of the Planning Area are designated by the United States Fish and Wildlife Service (USFWS) as critical habitat for the steelhead trout. Additionally, critical habitat

for the northern spotted owl is mapped in multiple locations within five miles of the Planning Area, although not in the Planning Area itself. Figure 3.4-2: Critical Habitats and Special-Status Species shows critical habitats within the Planning Area.

Sensitive Natural Communities

Sensitive natural communities are those protected by or of special concern to federal, state, or local resource conservation agencies and organizations. CDFW and CNPS both have programs that identify and track rare and/or diminishing native plant communities within California. Although some of these communities represent important biological resources and may be unique to California, they may have no legal or protected status under the California and/or federal Endangered Species Acts. Regardless, substantial losses of some of these plant communities may be considered significant under CEQA.

Data from CDFW accessed in April 2018 identifies six sensitive natural communities in the Planning Area (Figure 3.4-3). The following descriptions reference the CNPS online database of sensitive natural communities.

- ***Adenostoma fasciculatum* shrubland alliance (chamise chaparral).** Mapped on 12 acres at the northern edge of Study Area 1 and along the Napa River at Silverado Trail, this alliance overlaps with the Chamise-Redshank Chaparral habitat type. *Adenostoma fasciculatum* is dominant in the shrub canopy with *Adenostoma sparsifolium, Arctostaphylos glandulosa, Arctostaphylos manzanita, Arctostaphylos viscida, Ceanothus spp., Diplacus aurantiacus, Eriodictyon californicum, Eriogonum fasciculatum, Hesperoyucca whipplei, Heteromeles arbutifolia, Quercus berberidifolia, Quercus wislizeni, Salvia apiana, Salvia leucophylla, Salvia mellifera* and *Toxicodendron diversilobum*. Emergent trees may be present at low cover.
- ***Alnus rhombifolia* forest alliance (white alder groves).** Mapped on five acres along York Creek at the western edge of the city, this alliance overlaps a portion of the Montane Riparian habitat type. *Alnus rhombifolia* is dominant or co-dominant in the tree canopy with *Acer macrophyllum, Chamaecyparis lawsoniana, Fraxinus latifolia, Notholithocarpus densiflorus, Platanus racemosa, Populus fremontii, Populus trichocarpa, Pseudotsuga menziesii, Quercus lobata* and *Salix spp*.
- ***Pinus sabiniana* woodland alliance (foothill pine woodland).** Mapped on three acres at the western edge of the city, this alliance overlaps with the Blue Oak-Foothill Pine habitat type. *Pinus sabiniana* is dominant or co-dominant in the tree canopy with *Aesculus californica, Juniperus californica, Juniperus occidentalis, Pinus coulteri, Quercus chrysolepis* and *Quercus wislizeni*.
- ***Quercus agrifolia* woodland alliance (coast live oak woodland).** Mapped on 84 acres north of the Napa River, this alliance overlaps a portion of the Coastal Oak Woodland habitat type. *Quercus agrifolia* is dominant or co-dominant in the tree canopy with *Acer macrophyllum, Acer negundo, Arbutus menziesii, Juglans californica, Platanus racemosa, Populus fremontii, Quercus douglasii, Quercus engelmannii, Quercus kelloggii, Quercus lobata, Salix lasiolepis* and *Umbellularia californica*.
- ***Quercus douglasii* woodland alliance (blue oak woodland).** Mapped on 94 acres along the northwestern edge of the city and north of Howell Mountain Road, this alliance overlaps

with the Blue Oak Woodland habitat type and a portion of the Montane Hardwood habitat type. *Quercus douglasii* is dominant or co-dominant in the tree canopy with *Aesculus californica, Juniperus californica, Pinus sabiniana, Quercus agrifolia, Quercus lobata* and *Quercus wislizeni*.

- ***Quercus lobata* woodland alliance (valley oak woodland).** Mapped on 93 acres along the Napa River and York and Sulphur creeks, this alliance overlaps with the Valley Oak Woodland habitat type and portions of the Montane Riparian habitat type. *Quercus lobata* is dominant or co-dominant in the tree canopy with *Acer negundo, Alnus rhombifolia, Fraxinus latifolia, Juglans hindsii, Juglans hindsii × regia, Platanus racemosa, Populus fremontii, Quercus agrifolia, Quercus douglasii, Quercus kelloggii, Quercus wislizeni, Salix gooddingii* and *Salix lasiolepis*. Shrubs and lianas may include *Aristolochia californica* or *Vitis californica*.

Wildlife Corridors

A wildlife corridor is a linear landscape feature (such as a ridge or valley), allowing animal movement between two sections of habitat. Wildlife corridors can be regional or local in nature, and may be identified as functional for some species but insufficient for others. Wildlife corridors play an important role in preserving species diversity. In the absence of corridors, habitats become isolated islands surrounded by development. Fragmented habitats support significantly lower numbers of species and increase the likelihood of extinction for species restricted to small areas. Connections between areas of open space are an integral part of maintaining biological diversity and population viability. Preserving connectivity is one of the most practical and effective measures to protect native biodiversity.

Corridors are frequently constrained by development through the loss of cover, increased noise, and the increased presence of domestic animals. However, even constrained corridors may increase in importance when alternative, preferred corridors are disturbed or eliminated. With the continued loss of native habitats throughout Napa County, existing and even constrained corridors have taken on a heightened significance. Within the Planning Area, the Napa River, York Creek, and Sulphur Creek riparian corridors function as important wildlife corridors.

Wetlands and Other Waters

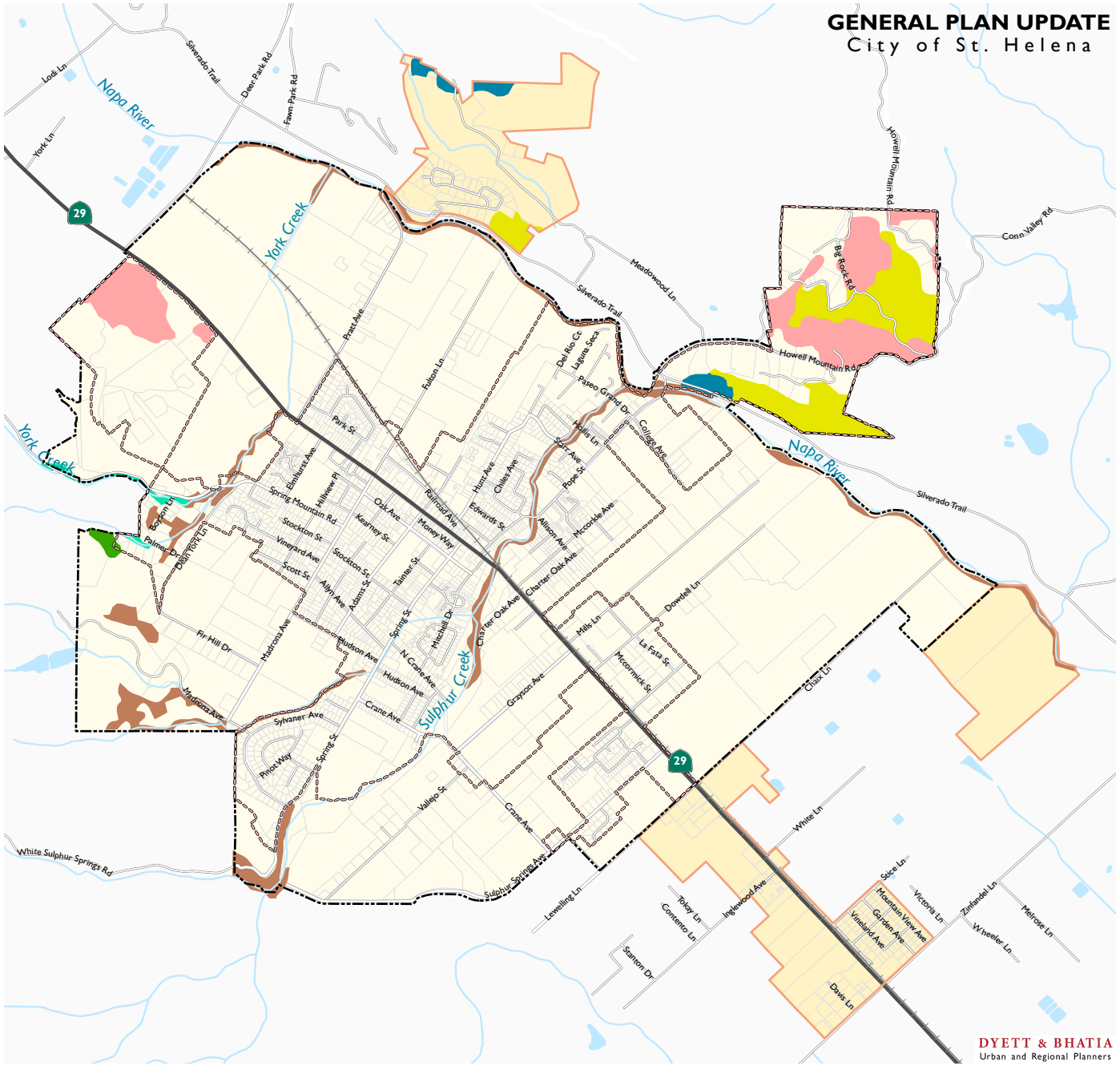
Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. Wetlands may support both aquatic and terrestrial species. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils (EPA). Wetlands provide a multitude of ecological, economic, and social benefits. They provide habitat for fish, wildlife, and plants, allow for groundwater recharge, reduce flooding, and support cultural and recreational activities. As discussed further below under Regulatory Framework, technical standards for delineating wetlands have been developed by the U.S. Army Corps of Engineers (USACE) and the USFWS. Based on existing information from CDFW, there are no wetlands mapped within the Planning Area; however, this does not preclude the future identification of wetlands during site-specific study.

In the Planning Area, jurisdictional waters under the Clean Water Act include the Napa River, Sulphur Creek, and York Creek. Many of the "water features" identified in Figure 3.4-1 are human-made reservoirs used for agricultural purposes and would most likely not be regulated by jurisdictional agencies. There remains a possibility that regulated waters may also include smaller tributary ephemeral and intermittent drainages that occur within the largely undeveloped hillsides in the western and eastern edges of the Planning Area; channelized drainages on the valley floor; or seasonal wetland features, seeps, and springs. Further site assessment would be required to confirm the extent of jurisdictional waters on undeveloped land proposed for development or conversion to agricultural uses. Such site-specific study is outside of the scope of this program EIR.

Figure 3.4-3

Sensitive Communities

- Adenostoma Fasciculatum Alliance
- Alnus Rhombifolia Alliance
- Pinus Sabiniana Alliance
- Quercus Agrifolia Alliance
- Quercus Douglasii Alliance
- Quercus Lobata Alliance
- Railroad
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; CA Department of Fish and Wildlife, Napa County and Blueridge Berryessa Dataset, 2018; Dyett & Bhatia, 2018

Figure 3.4-4

St. Helena Heritage Trees

Heritage Trees

Railroad

Water Features

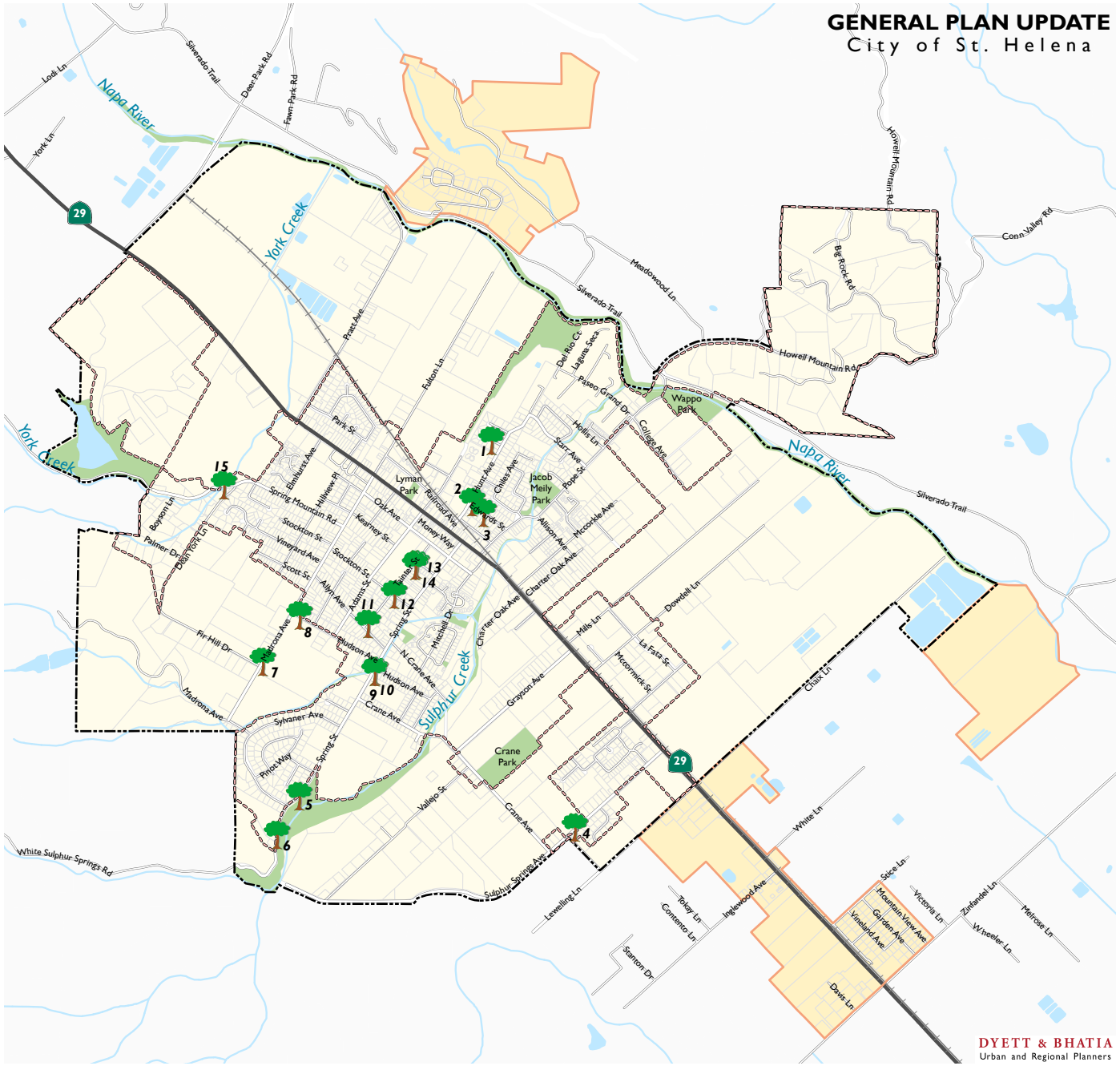
Parks and Open Space

Urban Limit Line

Study Areas

City of St. Helena

St. Helena Heritage Tree Location		
SN	***Address***	***Type***
1	1350 Grove Court	41" Valley Oak
2	957 Hunt Avenue	47" Douglas Fir
3	1201 Edwards St.	42" Valley Oak
4	1671 Sulphur Springs Ave	50" Coast Live Oak
5	2660 Spring Street	30" Coast Live Oak
6	2790 Spring Street	36" Valley Oak
7	2126 Madrona Avenue	39" Valley Oak
8	1544 Hudson Avenue	34" Vallley Oak
9	1918 Spring Street	32" Valley Oak
10	1918 Spring Street	52" Valley Oak
11	1276 Allyn Ave	50" Coastal Redwood
12	1256 Stockton Street	36" Incense Cedar
13	1413 Tainter Street	36" Valley Oak
14	1417 Tainter Street	36" Valley Oak
15	2080 Spring Mountain Rd	45" Coast Live Oak



0 1,000 2,000 4,000 Feet

Data Source: City of St. Helena, Department of Public Works, 2018; Napa County, 2018; Dyett & Bhatia, 2018

REGULATORY SETTING

Federal Regulations

On the federal level, the U.S. Fish and Wildlife Service (USFWS) is responsible for protection of inland non-anadromous fish through implementation of the federal Endangered Species Act[1] and the Migratory Bird Treaty Act. The National Marine Fisheries Service (NOAA Fisheries) is responsible for protection of anadromous fish and marine wildlife. The USACE has primary responsibility for protecting wetlands under Section 404 of the Clean Water Act.

Federal Endangered Species Act

The FESA was enacted to protect any species of plant or animal that is endangered or threatened with extinction. Section 9 of the FESA prohibits "take" of federally threatened or endangered wildlife. Take, as defined under the FESA, means to harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct (16 USC 1532[19]). Section 9 also prohibits the removal and reduction of endangered plants from lands under federal jurisdiction, and the removal, cutting, digging, damage, or destruction of endangered plants on any other area in "knowing violation of State law or regulation." Section 9 of the FESA (16 USC 1538) prohibits take of a federally listed endangered species of fish or wildlife except pursuant to a permit and habitat conservation plan (HCP) approved under Section 10(a) of the FESA (16 USC 1539). The FESA prohibitions and requirements are different, however, for endangered species of plants. Section 9 prohibits the take of endangered plants only from areas under federal jurisdiction, or if such take would violate state law. For listed plants located on private land, formal consultation with the USFWS is required when a project has a federal "nexus" (i.e., a federal permit is required or federal funding is involved). In the absence of a federal nexus, a project does not require a permit under the FESA for impacts on listed plants on private lands.

Migratory Bird Treaty Act (MBTA)

The MBTA (16 United States Code 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive, and is listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened birds under the FESA. The MBTA, which is enforced by the USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Clean Water Act (CWA)

The USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a

[1] The Federal Endangered Species Act (ESA) declares that all federal departments and agencies shall use their authority to protect endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of the ESA and pertains to California species.

direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or indirect (through a nexus identified in the USACE regulations). The USACE typically regulates as non-wetland waters of the United States any body of water displaying an ordinary high water mark (OHWM). In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met.

In 2006, the United States Supreme Court addressed CWA jurisdiction over wetlands adjacent to or abutting navigable, non-navigable, and ephemeral tributaries, and over permanent and relatively permanent non-navigable tributaries. According to the United States Supreme Court, the CWA does not assert jurisdiction over upland erosional features, gullies, or roadside ditches that have infrequent, low volume, and short duration of water flow; instead, the USACE uses a "significant nexus" analysis. A water body is considered to have a "significant nexus" with a traditional navigable water (TNW) if its flow characteristics and functions, in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream TNW. Additional information is provided in two joint documents prepared by the U.S. Environmental Protection Agency (EPA) and the USACE: (1) a memorandum titled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Caravell v. United States*," dated June 5, 2007; and (2) "Jurisdictional Determination Form Instructional Guidebook."

State Regulations

California Endangered Species Act

Under the CESA (Fish and Game Code Sections 2050 to 2116), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of "species of special concern," which serve as "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

California Fish and Game Code

Section 1602

Under Section 1602 of the California Fish and Game Code, public agencies are required to notify the CDFW before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review occur generally during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, the CDFW is required to propose reasonable project changes

to protect the resources. These modifications are formalized in a streambed-alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Section 3511 (Fully Protected Birds)

The California Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 3511 lists fully protected birds and prohibits take of these species. The California Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed the CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded upon the original NPPA and enhanced legal protection for plants. CESA established threatened and endangered species categories, and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA at the State level, through water quality certification of any activity that may result in a discharge to jurisdictional waters of the U.S. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act (see Section 3.9: Hydrology and Water Quality).

Local Regulations

St. Helena Municipal Code

Chapter 12.24 of the St. Helena Municipal Code pertains to trees and other vegetation. This chapter provides for protection of "heritage trees" and other protected trees. As defined by the ordinance, a "heritage tree" means any tree or grove of trees within the city boundaries designated by a resolution of the City Council, and "protected tree" includes a heritage tree or a protected replacement tree planted as a condition of mitigation for the removal of any existing native or heritage trees, street tree, and city tree. A Tree Committee is charged with the responsibility of reviewing all matters pertaining to tree resources and reporting back in an advisory capacity to the City Council, Planning Director, Parks and Recreation Commission, Planning Commission, and the public. As of 2018, the City of St. Helena has mapped 15 heritage trees throughout the city, as shown in Figure 3.4-4.

Napa County General Plan

The 2008 Napa County General Plan includes a conservation element that addresses natural resources in the unincorporated county. Goals related to biological resources include maintaining and enhancing biodiversity, protecting special-status species and their habitats, conserving habitats for native species, protecting connectivity for wildlife movement, and preserving forests, woodlands, and commercial timberlands. The Napa County General Plan applies to the unincorporated study areas.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;**

Criterion 2: **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service;**

Criterion 3: **Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;**

Criterion 4: **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;**

Criterion 5: **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or**

Criterion 6: **Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.**

METHODOLOGY AND ASSUMPTIONS

The Proposed Plan's Land Use Diagram was compared against existing biological conditions shown in Figures 3.4-1 through 3.4-4 to determine potential impacts on biological resources that could result from implementation of the Proposed Plan. No new field studies or other research were conducted for the preparation of this EIR, as existing resources contained information on all

pertinent aspects of biological resources in the Planning Area at an appropriate level of detail for a program level environmental assessment. Future project specific detailed biological surveys may be necessary to confirm presence or absence of sensitive resources on future development sites.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to biological resources in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to biological resources in the study areas. Cumulative impacts related to biological resources are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

The following relevant policies and implementing actions of the Proposed Plan address biological resources:

Open Space and Conservation Element

- ***OS1.1*** Preserve and enhance St. Helena's riparian corridors for their value in providing wildlife habitat, biodiversity, natural drainage, and visual amenity.
- ***OS1.2*** Prohibit development, alteration, and/or removal of native vegetation from riparian areas. Disallow invasive species that degrade habitat quality.
- ***OS1.3*** Protect and enhance contiguous corridors of riparian vegetation along the Napa River and its tributaries in order to support regional wildlife movement and enhance aquatic habitat.
- ***OS1.4*** Protect natural habitats that have the potential to support rare, endangered, or special-status wildlife and plant species. Control invasive species that degrade habitat quality.
- ***OS1.5*** Restrict development of hillside areas in order to protect wildlife, vegetation, viewsheds, and open space characteristics.
- ***OS1.6*** Manage invasive species that degrade habitat quality, especially along the Napa River and its tributaries.
- ***OS1.7*** Promote, encourage, and require sustainable agricultural practices that are sensitive to natural habitat and do not harm wildlife.
- ***OS1.A*** Develop and adopt an ordinance for the protection, restoration, and enhancement of creek corridors. The ordinance should consider the following:
  - Establish setbacks for all new development projects to protect stream function and riparian habitat, while allowing for limited recreational uses and access to the stream corridor for maintenance and flood control;

  - Limit use of herbicides and insecticides associated with aquatic toxicity in areas near and adjacent to creeks, and ensure best environmental management practices for all developments and industries;
  - Provide access for creek maintenance and public use through easements and cooperative agreements with landowners;
  - Establish sufficient buffer width adjacent to waterways to allow for wildlife habitats, trails, and greenbelts;
  - Adhere to Living River Principles that allow the river to meander, maintain its natural floodplain and retain natural channel features to support continuous fish migration and the health of riparian corridors;
  - Encourage the use of bioswales, off-stream detention ponds, and other green best practices for stormwater management;
  - Implement an Integrated Pest Management ordinance that includes provisions to minimize the reliance on pesticides that threaten water quality and to require the use of integrated pest management in municipal operations; and
  - Incorporate relevant actions and performance standards in TMDL implementation strategies for the Napa River to control discharges of pathogens and sediment.

- ***OS1.B*** Restrict development on open space-designated parcels along Sulphur Creek west of the Crane Avenue Bridge. All development must be outside the stream corridor and structures must be set back from the creek's edge, consistent with California Department of Fish and Game standards.
- ***OS1.C*** Coordinate with the California Department of Fish and Game, the Living Rivers Council, the Regional Water Quality Control Board and other federal, State, and local regional agencies with regulatory authority for water quality, protected plant and animal species, and streams and wetlands to restore and maintain creek corridors.
- ***OS1.D*** Coordinate with the County, the California Department of Fish and Game, and other regional agencies to augment water flow in the Napa River and its tributaries in order to enhance year-round fish habitat and minimize stagnation and pollution.
- ***OS1.E*** Create a work plan for restoring sensitive habitat that has been degraded by agriculture or other past practices. Where applicable, encourage agricultural enterprises to participate in restoration efforts and in efforts to prevent further degradation.
- ***OS1.F*** Create a set of guidelines for the protection of special-status species and sensitive natural communities. Guidelines can include appropriate survey methods consistent with the California Department of Fish and Game, the U.S. Fish and Wildlife Service, NOAA Fisheries, and CEQA requirements.
- ***OS1.G*** Require a biological assessment of any proposed project site where species or the habitat is defined as sensitive or special-status by the California Department of Fish and Game, NOAA Fisheries, or the U.S. Fish and Wildlife Service might be present, including the installation of new wind turbines for alternate energy. Avoid potential impacts of sensitive resources as part of new development to the maximum extent feasible. Where complete avoidance is not possible, the project applicant must secure any required

authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is no net loss in habitat acreage or values.

- ***OS1.H*** Require all proposed projects adjacent to a creek corridor or located in the city's hillside areas to submit a management plan for protecting natural habitats, including provisions to:
  - Employ supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to keep the watersheds on steep slopes and along streams in good condition, and to provide shelter and food for wildlife;
  - Provide protection for wildlife habitat.
- ***OS1.I*** Require new development to be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of natural plants, and sensitive wildlife habitat.
- ***OS1.J*** Discourage and minimize the installation of deer fencing to maintain wildlife corridors and support regional wildlife movement.
- ***OS1.K*** Require environmental review of new agricultural uses, including, but not limited to, farming, horticulture, floriculture and viticulture, animal husbandry, and livestock farming. The environmental review shall ensure that no sensitive biological resources would be adversely affected. Viticulture review must include the replanting of existing vineyards in accordance with County regulations.
- ***OS1.L*** Discourage removal of trees for agricultural or other development in hillside areas. Ensure Woodlands and Watershed restrictions are followed.
- ***OS1.N*** Conduct a study to determine if the build-up of gravel in Sulphur Creek will result in a high risk of flooding. Limit development in Flood Risk Hazard Areas using FEMA's 100-year flood zone regulations at a minimum, and inform property owners of existing development so they are aware of flood risks and available State and federal insurance opportunities. Ensure that implementation measures contribute positively to the preservation of the creek and its corridor.
- ***OS1.O*** As part of new development, avoid disturbance to and loss of bird nests in active use by scheduling vegetation removal and new construction during the non-nesting season (September through January) or by conducting a preconstruction survey by a qualified biologist if vegetation removal and construction is initiated during the nesting season (February through August). Surveys for nesting birds will be conducted no earlier than 14 days prior to tree removal and/or breaking ground. In the event that nesting birds are found, the project applicant will consult with CDFG and obtain approval for nest-protection buffers prior to tree removal and/or ground-breeding activities. Nest protection buffers will remain in effect until the young have fledged.
- ***OS1.P*** Avoid potential impacts on jurisdictional wetlands and other waters as part of new development to the maximum extent feasible. Where complete avoidance is not possible, the project applicant must secure any required authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is not less in habitat acreage or values.

- ***OS1.Q*** Carry out the removal of the Upper Dam on York Creek sufficient to allow the passage of fish, especially Central California steelhead, a threatened species, and complete the restoration of historical fish habitat above the dam.
- ***OS2.5*** Limit public access to habitat areas when public access will significantly impact the sensitivity of the habitat area.
- ***OS2.B*** Adopt a land dedication ordinance that requires developers to provide land and improvements, such as trails and re-vegetation, along both sides of water corridors as a condition of subdivision approval for areas adjacent or in the vicinity of St. Helena waterways. The width of dedicated corridors should be established in consultation with the California Department of Fish and Game.
- ***OS4.A*** Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees. Key program aspects will include the following:
  - A tree planting program to ensure that new trees are planted regularly;
  - A tree maintenance program to ensure that existing trees are healthy and pruned;
  - A tree inventory to create a comprehensive listing of the City's trees and tree-related needs;
  - A Tree Committee to oversee the implementation of the urban forestry program and approval of tree removals;
  - A landmark tree list that identifies trees that require additional protection from damage and/or removal; and
  - Appropriate Heritage tree deed restrictions.
- ***OS4.C*** Develop and adopt a Tree Ordinance for the purpose of protecting trees and identifying replacement trees. In coordination with an urban forestry program, existing, significant trees should be integrated into future development. In cases where existing trees cannot be saved, require the planting of replacement trees consistent with guidelines included in the Master Tree List.

IMPACTS

Impact 3.4-1 Implementation of the Proposed Plan would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (*Less than Significant*)

A range of special-status species have been observed in and around the Planning Area as described above in the Physical Setting and listed in Tables 3.4-1 and 3.4-2. Additionally, critical habitat for special-status species has been mapped in and around the Planning Area. Future development under the Proposed Plan could have a significant direct or indirect impact on these species if it would result in the removal or degradation of the species or potentially suitable habitat.

Development under the Proposed Plan is anticipated to take place primarily within the developed footprint of the Planning Area, limiting the potential for adverse impacts on special-status species and sensitive natural communities. The 13 land use change areas (see Chapter 2: Project Description) are generally clustered around the center of the city on urban parcels rather than parcels mapped with habitats shown in Figure 3.4-1. Two exceptions include change area 9, which redesignates an area mapped as Douglas-Fir habitat as Low Density Residential, and change area 11, which would redesignate an area mapped as Orchard-Vineyard as Open Space. Outside of the land use change areas, the Proposed Plan includes urban and agricultural land use designations on parcels mapped with habitats on Figure 3.4-1. These include areas mapped as Orchard-Vineyard in the central part of the city; areas mapped as Montane Riparian along York Creek and Sulphur Creek; and areas mapped as Montane Hardwood, Douglas-Fir, and Blue Oak-Foothill Pine along the western edge of the Urban Limit Line (ULL). If future development were to degrade or remove suitable habitat for special-status species in these or any as-yet unmapped habitats, there could be a significant impact on special-status species. This could occur as a result of grading, excavation, and construction activities, or from ongoing operation and/or maintenance of a project. The Proposed Plan does not include any land use designations for the study areas, which are outside of the City of St. Helena's jurisdiction, and would therefore have no direct impacts on resources in those areas.

Policies in the Proposed Plan would serve to reduce potential impacts. Policy OS1.4 and Implementing Actions OS1.F, OS1.O, and OS1.G in particular address direct impacts on special-status species and their habitats, including requirements to conduct surveys for nesting birds and ensuring CDFW-approved mitigation for any nesting birds found, and biological assessments for sensitive species and habitats to ensure no loss of habitat or values. Additionally, Policy OS1.7 and Implementation Action OS1.K would require new agricultural developments to undergo environmental review and adopt sustainable agricultural practices sensitive to habitats and wildlife. Other policies (OS1.1, OS1.2, OS1.3, OS1.5) and implementation actions (OS1.A, OS1.B, OS1.C, OS1.D, OS1.H, OS1.P, OS2.B) would protect the integrity of the city's habitats, including riparian corridors, hillsides, waterways, and wetlands. Additional policies and implementation actions would improve the quality of habitats through managing invasive species (OS1.6), limit access to habitat areas if it would impact the value of the area (OS2.5), restore sensitive habitats (OS1.E), protect native trees and vegetation (OS1.I and OS1.L). With implementation of these policies, the impact of future development under the Proposed Plan on species identified as candidate, sensitive, or special-status species would be reduced to less than significant.

Mitigation Measures

None required.

Impact 3.4-2 Implementation of the Proposed Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service. (*Less than Significant*)

As shown in Figure 3.4-1 and Figure 3.4-3, the Planning Area includes Montane Riparian habitat along waterways and six sensitive natural communities located along in the western portion of the city and north of the Napa River. Implementation of the Proposed Plan could have a significant

impact on riparian habitat or other sensitive natural communities if future development under the Proposed Plan resulted in the removal or degradation of the habitat. The Proposed Plan does not include any land use designations for the study areas, which are outside of the City of St. Helena's jurisdiction, and would therefore have no direct impacts on resources in those areas.

As discussed under Impact 3.4-1, future development under the Proposed Plan would take place primarily in previously developed portions of the Planning Area, limiting the potential for disruption to undeveloped habitat areas. In addition, a portion of *Quercus lobata* alliance located along Sulphur Creek and some additional swathes of Montane Riparian habitat long the creek would be designated as Open Space, which is intended solely for low-impact uses such as natural resource preservation and management, passive outdoor recreation, and public safety. However, the remainder of the Montane Riparian habitat and sensitive communities would have land use designations that could allow development. These designations include Woodlands and Watershed, which allows for very low density residential uses, and which would cover the *Quercus douglasii* alliance at the northwest edge of the city and all sensitive natural communities north of the Napa River; Agriculture, which would allow agricultural and winery uses with restricted single-family residential and public/quasi-public uses where *Quercus lobata* alliance is mapped near Madrona Avenue; Low Density Residential where *Pinus sabiniana* and *Quercus lobata* is mapped near Dean York Lane; and a mix of Industrial, Mixed-Use, Service Commercial, Central Business, Medium Density Residential, High Density Residential, and Parks and Recreation uses along Sulphur Creek as it passes through central St. Helena.

In the case of Woodlands and Watershed, although the land use designation would allow for low-density residential development, it is also intended to ensure the protection of wildlife, vegetation, open space, and watershed resources; thus development in those areas would be expected to minimize any impacts to sensitive habitats. For development occurring in other land use designations, the policies and implementing actions cited under Impact 3.4-1 would serve to reduce potential impacts on sensitive habitats, particularly those that establish requirements for the protection of riparian habitats (Policies OS1.1, OS1.2, OS1.3, and OS1.6; and Implementation Actions OS1.A, OS1.B, OS1.C, OS1.H, OS1.N, and OS2.B) and sensitive habitats in general (Policy OS2.5 and Implementation Action OS1.I). Implementation Actions OS1.A and OS1.H specifically provide for setbacks and buffers, limits on herbicides and insecticides, sediment discharge, vegetation maintenance, and the protection of wildlife habitat in riparian corridors. Thus, with implementation of these policies, the impact of future development on riparian habitat or other sensitive communities would be reduced to less than significant.

Mitigation Measures

None required.

Impact 3.4-3 Implementation of the Proposed Plan would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (*Less than Significant*)

No wetlands have been mapped in the Planning Area; however, wetlands have the potential to occur anywhere water is present for prolonged periods of time. Within the Planning Area, this

could include areas around the Napa River or its tributaries, and other water features. The determination of any given habitat as a wetland would be made on a case by case basis according to criteria established under the Clean Water Act. Implementation of the Proposed Plan could have a significant impact on federally protected wetlands if future development under the Proposed Plan would adversely affect the wetlands either directly through fill or indirectly through the alteration of the hydrologic regime.

Future development under the Proposed Plan would be subject to the requirements of Clean Water Act Section 404 and 401 permitting requirements, which would limit and/or mitigate impacts from projects that would discharge pollutants or dredged or fill materials into waters of the state, including wetlands. Future development would also be subject to the CDFW Lake and Streambed Alteration Program, which would require any project that could substantially divert or obstruct the flow of; substantially change or use any material from; or deposit debris into a river, stream, or lake to agree to measures that would protect existing fish or wildlife resources.

Proposed Plan policies and implementing actions would further reduce potential impacts by protecting habitats with the potential to support special-status species (OS1.4) and avoiding potential impacts on jurisdictional wetlands (OS1.P), and protecting habitats around the Planning Area's waterways as well as the Planning Area's hydrology (OS1.1, OS1.2, OS1.3, OS1.6, OS1.A, OS1.B, OS1.C, OS1.D, OS1.H, OS1.I, and OS1.N). With compliance with existing State and federal law, and implementation of the Proposed Plan's policies, the impact of implementation of the Proposed Plan on jurisdictional wetlands would be less than significant.

Mitigation Measures

None required.

Impact 3.4-4 Implementation of the Proposed Plan would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (*Less than Significant*)

In the Planning Area, contiguous undeveloped areas outside of the ULL may serve as wildlife corridors for common and special-status species, and the Napa River and Sulphur and York creeks provide corridors for aquatic and riparian species, including steelhead trout. The Planning Area also includes forested habitats that may provide nesting sites for birds and other species. Implementation of the Proposed Plan would have a significant impact on migratory species, corridors, or nursery sites if the siting, construction, or operation of development allowed under the Proposed Plan would impede on or remove migratory corridors or nursery sites.

As discussed under Impact 3.4-2, the Proposed Plan includes policies and implementation actions to protect and, in some cases, restore riparian habitat along the river and creeks. The Proposed Plan also includes policies and implementation actions that specifically address wildlife movement, including establishing sufficient buffers around waterways to allow for wildlife trails and retaining natural channel features to support continuous fish migration (OS1.A), enhancing year-round fish habitat (OS1.D), minimizing deer fencing to support regional wildlife movement (OS1.J), avoiding disturbance of bird nesting sites (OS1.O), and removing the Upper Dam on York

Creek to allow the passage of fish (OS1.Q). With implementation of the Proposed Plan's policies and existing regulations, impacts on wildlife movement or wildlife nursery sites would be less than significant.

Mitigation Measures

None required.

Impact 3.4-5 Implementation of the Proposed Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant*)

The City of St. Helena Municipal Code Chapter 12.24 provides for the protection of heritage trees, replacement trees, street trees, and City trees. Napa County has a General Plan, which addresses the protection of biological resources, but does not currently have a local ordinance protecting biological resources. Implementation of the Proposed Plan would have a significant impact if it conflicted with either the St. Helena Municipal Code or the Napa County General Plan.

The Proposed Plan policies are generally consistent with the City's code regarding tree preservation. The Proposed Plan includes implementation actions that support the code, including establishing an urban forestry program to maintain and increase the City's trees (OS4.A), and developing a Tree Ordinance to protect trees and identify replacement trees (OS4.C). These policies echo the standards and mechanisms of Municipal Code Chapter 12.24. The Proposed Plan does not include any designations or policies for the study areas, which are outside of the City's jurisdiction, and would therefore have no effect on the implementation of the Napa County General Plan. Therefore, implementation of the Proposed Plan would not conflict with any policies or ordinance regarding biological resources and the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.4-6 Implementation of the Proposed Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. (*No Impact*)

There is one Habitat Conservation Plan (HCP) that would apply within the Planning Area. Pacific Gas & Electric (PG&E) has prepared a multi-species Habitat Conservation Plan (HCP) for PG&E's gas and electric transmission and distribution facilities, rights-of-way, buffer lands, areas owned by PG&E and/or subject to PG&E easements, access routes, and those areas acquired as mitigation to offset the impacts resulting from covered activities in the nine Bay Area counties: including Napa County. Activities that are covered under the HCP include activities associated with the operation and maintenance (including limited minor new construction) of PG&E's gas and electric transmission and distribution system as mandated for public safety. There are no Natural Community Conservation Plans at the county level that include land within the Planning Area. Implementation of the Proposed Plan would have a significant impact if it would conflict with the provisions of the HCP.

The Proposed Plan does not include any policies that would interfere with the ability of a private entity such as PG&E to implement an HCP. The intent of the HCP is generally consistent with the Proposed Plan's policies to limit and mitigate impacts on special-status species. Therefore, there would be no impact related to conflicts with any applicable habitat conservation plan or natural community conservation plan from implementation of the Proposed Plan would be less than significant.

Mitigation Measures

None required.

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3.5 Cultural, Historic, and Tribal Cultural Resources

This section assesses potential environmental impacts on historic and cultural resources from future development under the Proposed Plan, including those related to historic, archaeological, tribal cultural resources (including human remains), and paleontological resources. Cultural resources refer broadly to prehistoric and historic buildings, structures, objects, districts, and sites exhibiting important historical, cultural, scientific, or technological associations. This definition extends to Tribal Cultural resources which refer to sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. For the purposes of CEQA, cultural resources are separated into four subcategories: historic resources, archeological resources, Native American tribal resources and remains, and paleontological resources. The section describes the historical setting of the Planning Area, as well as the context for cultural resources in the Planning Area. It also includes a description of relevant federal, State, and local regulations and programs related to cultural resources. Information for this chapter was compiled primarily from a records search for archaeological, historical, and/or Native American resources on file with the Northwest Information Center (located at Sonoma State University in Rohnert Park), past historical resource evaluations analyzing the historic structures within St. Helena, and historical analysis analyzing the paleontology, pre-history, and history of St. Helena. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

The historical, cultural, and tribal cultural analysis includes the Planning Area and a quarter-mile buffer beyond the Planning Area boundaries. Development within the city limits should not affect the areas outside the Planning Area since historic, paleontological, and archeological impacts are generally site-specific; however, the records search and sensitivity assessment for the City extends a quarter mile beyond the Planning Area boundaries to account for sprawling or linear cultural resources which may be located along and extend beyond the boundaries of the Planning Area. Historic, paleontological, and/or archeological resources encountered beyond the city limits would be managed subject to the jurisdiction in which they are located.

Historical Setting

Prehistoric and Ethnographic Periods

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (Frederickson, 1974), (Frederickson, Archaeological Taxonomy in Central California Reconsidered, 1994) is commonly used to interpret the prehistoric occupation of Central California. The sequence consists of three broad periods: the Paleoindian Period (10,000-6000 B.C.); the three-staged Archaic Period, consisting of the Lower Archaic (6000-3000 B.C.), Middle Archaic (3000-500 B.C.), and Upper Archaic (500 B.C.-A.D. 1000); and the Emergent Period (A.D. 1000-1800).

The Paleo Period began with the first entry of people into California. These people probably subsisted mainly on big game and minimally processed plant foods and had few or no trade networks. Current research, however, indicates more sedentism, plant processing, and trading than previously believed. During the Lower Archaic, milling stones for plant processing were abundant and hunting was less important than obtaining plant foods. Artifacts were predominantly of local materials, suggesting that few, if any, extensive trade networks were established at this time. During the Middle Archaic, the subsistence base began to expand and diversify with a developing acorn economy, as evidenced by the mortar and pestle, and the growing importance of hunting. Status and wealth distinctions were evidenced in the Upper Archaic archaeological record, and regional trade networks were well established for the exchange of goods and ideas, such as obsidian and Kuksu ceremonial practices involving spirit impersonations. Increasing social complexity continued during the Lower Emergent, with well-established territorial boundaries and regularized inter-group exchanges involving more and varied goods, people, and ideas. Bow and arrow technology was also introduced. By the Upper Emergent, a monetary system based on the clamshell disk bead had been established. Native population reached its zenith during this time, as evidenced by high site densities and large village sites in the archaeological record.

Native American occupation of the Upper Napa Valley dates from at least the Middle Archaic and continued until the Upper Emergent. Middle Archaic occupation is evidenced at a prehistoric archaeological site near St. Helena, characterized by an assemblage that includes thick-leaf and concave-base projectile points, and millingslabs and handstones. Evidence of Emergent Period occupation, including “Rattlesnake Series” and “Stockton Series” projectile points, is commonly found at sites in St. Helena and the vicinity.

At the time of Euro-American contact, St. Helena was within the territory of the Wappo, one of two Yukian language groups (Shipley, 1978). Wappo territory included approximately the area between the City of Napa, Cobb Mountain, and Alexander Valley (Sawyer, 1978). Little is known about the Napa Valley Wappo during the historical contact period, and knowledge of the Wappo derives mostly from Driver’s ethnography of an Alexander Valley Wappo tribe (Driver, 1936).

According to Barrett the Wappo villages in or closest to the Planning Area are Annakotanoma, on the town site of St. Helena, and Tsemanoma, in the foothills on the eastern side of Napa Valley, about 2 miles northeast of St. Helena (Barrett, 1908). Wappo habitation sites were of two kinds (Driver, 1936): permanent, or winter villages, and temporary, or summer villages. This settlement pattern is similar to the “tribelet” or “village community” typical of most California groups at the

time of Euro-American contact (Kroeber, 1932) (Kroeber, Handbook of the Indians of California, 1925). These village communities consisted of a principal winter village, where the chief resided, with outlying, secondary settlements used during the spring and summer to exploit seasonal resource patches. A village community, ranging in population from about 100 to 2,000 persons, claimed communal lands in which members could hunt, fish, or gather plant food without limitations of private ownership (Kroeber, Handbook of the Indians of California, 1925).

Archaeological data indicate numerous permanent and temporary villages in the Upper Napa Valley. These sites are frequently identified by the presence of midden soils—anthropogenic soils that develop from the accumulation of organic debris—and can include shell, faunal bone, and culturally flaked stone, such as obsidian and chert.

St. Helena History

In 1842, Rancho Carne Humana, in Napa County, was granted to a young English surgeon, Dr. Edward Bale. Comprised of the entire Napa Valley north of George C. Yount's Rancho Caymus, Rancho Carne Humana included the future site of the City of St. Helena.

By 1851, Henry Still and his partner Walters had purchased 100 acres from the estate of Dr. Bale, that would become St. Helena. This 100-acre parcel was bounded by what are now Main Street to the northeast, Sulphur Creek to the southeast, Madrona Avenue to the northwest, and the foothills to the southwest.

The first structure built in what would become St. Helena was a house by Still and Walters in 1851. According to Smith and Elliot, the store building constructed by Still and Walters was located on a site subsequently occupied by G.F. Brown (Smith & Elliott Publishers, 1878). In 1854, the Sons of Temperance formed a post in the town, naming themselves the St. Helena Division, giving the town its name.

By 1855, in an effort to attract business to the new town, Still gave away parcels adjacent to the County Road (now known as Main Street). In 1856, John Howell erected his blacksmith shop, near what is currently Main Street, and A. Tainter built a hotel at Pope and Main streets. Other early businessmen included John S. Keister, who ran a shoe store, and Robert Calderwood, who ran a wagon store. By 1855, St. Helena had seven thriving businesses serving the surrounding farmlands.

The first record of a vineyard in Napa County is one of Mission grapes started by J.N. Pachett in 1850, and the first shipment of wine from the county occurred in 1857. George Belden Crane, viticulture pioneer of the 1850s, had his first experimental vineyards on the land now occupied by the St. Helena High School at 437 Main Street. Charles Krug began making wine on the site of the present Charles Krug winery in St. Helena in 1861. In 1874, John Thomman, a Swiss winemaker, established his winery south of town. Along Sulphur Springs Avenue were the vineyard and orchard estates of the Lewelling family, Mrs. W.B. Bourn, Charles Langley, General Keyes, and the Heath family. By the 1870s, grazing and grain lands surrounding the town were profitably converted to viticulture and horticulture.

St. Helena's burgeoning role as an agricultural crossroads in the Napa Valley was improved when railway transportation came to the area in the 1860s. In March 1864, a bill to aid the construction

of a railroad in Napa County was introduced in the Legislature by Chancellor Hartson. After passage of the bill on April 24, 1864, the Napa Valley Railroad Company was organized with Hartson as president. The Napa Valley Railroad originally was built from Suscol to Napa, and eventually to St. Helena, reaching the town on February 27, 1868. The Napa Valley Railroad underwent foreclosure in 1896 and was acquired by the California Pacific Railroad. In April 1899, the California Pacific Railroad was taken over by the Southern Pacific Railroad, which used the railroad as a freight line.

St. Helena received its city charter on March 24, 1876. By the 1880s, the land from Napa to 18 miles north of St. Helena was basically one continuous vineyard (Napa County Landmarks, Inc., 1978). An 1886 Sanborn Fire Insurance Map shows the W.A.C. Smith Special Bonded Warehouse for wines located on the south side of Church Street, between Pope Street and Hunt Avenue. The warehouse had a storage capacity of 120,000 gallons and is evidence of St. Helena's early history of wine production. The City of St. Helena was later reincorporated on May 14, 1889.

After 1868, when the railroad was extended from the Napa Valley to Calistoga, the largely open, sparsely-setting farmland was rapidly parceled out. Farmers could now profitably ship their produce down the valley to Napa by train, and from there by train or boat to markets in San Francisco. Fruit, vegetables, grain, dairy products, and other agricultural products were in high demand and commanded high prices. Cutting cordwood and poles on the forested slopes outside of the city continued at a brisk pace, and the area northeast of the railroad was home to woodworking and planing mills.

St. Helena became a major commercial center for the developing countryside and a central shipping point for agricultural and extractive industries for the upper Napa Valley and beyond. The original railroad depot located at Railroad Avenue and Hunt Avenue could not handle the increasing volume of freight and passenger traffic by the 1880s when the Southern Pacific Railroad had taken over the line. According to Sanborn Fire Insurance Maps, as early as 1899, Southern Pacific built a larger standardized depot at the present location on Railroad Avenue and Pine Street.

Main Street has been St. Helena's main thoroughfare since the city's founding, connecting the city to Napa to the south and Calistoga to the north. By the 1880s, wooden sidewalks were installed for pedestrians to walk on along Main Street, and by 1900 sewers had been installed and the wooden sidewalks replaced by concrete. Seven years later, an electric railway was installed on Main Street, providing public transportation. In 1937, the electric railway was discontinued, and Main Street was paved with concrete and asphalt, which is how it appears today (Loeber, 1955).

During the Prohibition years of 1920 to 1933, St. Helena's economy, as well as most of the region's, fell into a slump because of the devastation that the Volstead Act and resulting Eighteenth Amendment caused to viticulture. Most wineries and vineyards either had to find a new cash crop or shut down completely. Some farmers were able to find alternative crops to produce, such as fruits, nuts, and grains while others went into ranching. Only a small handful of vineyards in the entire region, such as the Beringer Vineyard, were able to survive with special permits to produce sacramental wines.

After the end of Prohibition in 1933, wineries and vineyards could legally reopen; however, many proprietors remained closed due to the harsh financial times caused by the Great Depression. Not until after World War II did commercial production of wine in the Napa Valley return to pre-Prohibition levels (Heintz, 1999). After 1945, the viticulture industry around St. Helena gradually recovered. During this time, the tourist industry developed and grew, with an emphasis on the wineries and vineyards in the area. Today, wines from St. Helena and its environs are considered to be some of the best in the world.

Historic Built Environment

Over time, St. Helena has developed from a rural agricultural community into a small city focused on the wine industry and related tourism. The agricultural roots of the area are clearly visible in the area's built environment. The city's main industry has always been viticulture, and many historic wineries, complete with farmhouses, agricultural outbuildings, and vineyards, are located within the city limits. As the city grew to become an agricultural crossroads in the late-nineteenth century, commercial buildings, typically constructed of brick and local stone, were erected along Main Street. Mills and industrial buildings that processed the area's agricultural resources were located to the northeast of the railroad. The city's residential areas developed both to the northeast and southwest of the railroad and Main Street, the city's commercial core. St. Helena's historic residential areas include a variety of architectural styles.

Architectural Typologies

Winery Architecture

The design, construction, and spatial organization of St. Helena's wineries, like all ranches in the West, depended on many factors, including climate, soils, availability of water and building materials, and the ethnicity and class of their builders. These factors, as well as the ingenuity of individual ranchers or their employees affected the handling of materials and use of building technologies.

The most significant character-defining feature of rural agricultural buildings in California is their utilitarian appearance, a function of the inexpensive materials and design for flexibility. As functional buildings set back far from the main house or the road, outbuildings such as field barns, pump houses, chicken coops, and bunkhouses were typically designed without the aid of an architect. Most were instead built from pattern books, traditional know-how passed from generation to generation, or a combination of both. Ethnic and regional influences played a part as well. The typical two-story, gable-and-shed roof California barns of the nineteenth-century are thought to have derived from the "crib-and-shed" type barns of Tennessee. Composed of a central gable-roofed "nave" illuminated by monitor windows and flanked by shed-roofed side aisles, the crib-and-shed barn disseminated westward through the Plains states, where it was modified to employ timber framing instead of log construction. In this guise, the "three portal crib barn" eventually infiltrated the valleys of the Pacific West, including the Willamette Valley of Oregon and the San Joaquin, Sacramento, Santa Clara, and Salinas valleys of California, where the original prototype was gradually modified in response to local environmental conditions and crops.

In addition to the simple, utilitarian timber-frame, three-portal barn, many wineries in St. Helena also contain examples of more substantial stone outbuildings and associated features, such as wine-aging caves. Influenced by St. Helena's large ethnic communities and the skills of immigrant

stonemasons, some buildings in St. Helena were constructed of local stone, typically tufa stone. Stonemasonry drew on a wide range of ethnic backgrounds, including Swiss and Italian. The availability of stone craftsmanship in St. Helena made it economically viable to build in stone rather than other materials. Commercial buildings, residential basements, simple industrial warehouses, and even agricultural outbuildings were constructed of stone. Utilitarian outbuildings and features such as winery storage buildings, well houses, and tunnels, which benefit from the cooling properties of stone, were constructed in local stone. These typically utilitarian structures are unique for their inclusion of detailed stonework and ornamentation such as quoins. One of the most notable of these features is the wine-aging tunnels that Chinese immigrants excavated from the late 1870s to early 1880s into the side of Spring Mountain at Beringer Winery. These tunnels extend approximately 1,200 linear feet and were constructed using picks, shovels, and black powder.

In addition to barns, tankhouses for storing water were a common building type in the vicinity of St. Helena. Tankhouses were erected between the late 1800s and late 1930s in the western United States. In St. Helena, as in many rural areas that have been developed, many tankhouses have been torn down, although some remain within the city, often converted to other uses.

Residential Architecture

By 1876, the physical fabric of today's City of St. Helena had already begun to take shape. Buildings appear in the Greek Revival, Gothic, Italianate, Second Empire, and other styles. Many buildings were not designed in a recognizable architectural style, as they were folk-designed structures that made use of local materials. Designed for practical purposes and often with limited resources, many of St. Helena's early buildings can be described as being of vernacular design.

Few historic images of St. Helena buildings have been found; therefore, the understanding of vernacular architecture in St. Helena is based largely on existing historic buildings. A historical architectural survey from 2006 revealed a wide variety of vernacular building types in addition to popular architectural styles such as Stick/Eastlake, Queen Anne, Shingle, Romanesque, Arts & Crafts, Art Deco, Spanish Colonial Revival, and Mission Revival (Page & Turnbull, Inc., 2006). Much of the common vernacular residential architecture in St. Helena includes easily recognizable rural vernacular house forms, including rectangular massing, gabled or hipped roofs, wood-frame construction, extended porches, simple locally-available materials, including redwood siding, and little ornamental detail.

St. Helena's residential development can generally be categorized into three areas with unique styles: houses on Main Street, houses northeast of Main Street, and houses southwest of Main Street. Main Street residential architectural styles include Craftsman and Georgian Revival. Historical residences in this area are often sited on large lots with elegant landscaping, as seen in the residential neighborhood of Alexander Court just off Main Street. Residences northeast of the city's commercial core along Main Street were largely influenced by the presence of the railroad. Much of this housing was worker housing rendered in simple vernacular styles that made use of readily available local materials. Residences in this area are also situated on large agricultural lots that functioned as small family farms and contained a main house and agricultural outbuildings. The area southwest of the city's commercial core was more densely developed than other areas of the city, with majority of houses constructed between the late-19th and early-20th century in a vernacular style, although other notable styles including Stick, Craftsman, Italianate, and Folk Victorian, are present. Many of the

residences southwest of Main Street were constructed on small lots, but set back from the lot lines, giving the neighborhood a rural character.

Commercial Architecture

The late-19th and early-20th century architecture of St. Helena's commercial corridor along Main Street has been recognized as a National Register Historic District (St. Helena Historic Commercial District). Main Street, however, also contains many historically significant mid-20th century commercial properties that have not been formally recorded as contributors to the St. Helena Historic Commercial District. While the area's economy was severely affected by both Prohibition and the Great Depression, a few commercial buildings were constructed along Main Street in the 1930s and 1940s in the Streamline Moderne style. These modern buildings, which include the El Bonita Motel (195 Main Street), Gott's Roadside Tray Gourmet (933 Main Street), and the Main Street Service Station (1380 Main Street), were set in contrast to St. Helena's other architecture from that time, which was largely derived from historic precedents, not modern styles. In addition to the unique architectural style employed, the commercial buildings were also typical of the era's automobile-focused culture. These 1930s- and 1940s-era commercial buildings were typically constructed on large lots and included large setbacks from Main Street allowing for ample automobile parking.

Designated Historic Resources

Generally, to be considered a significant historic or cultural resource for the purposes of CEQA, a resource must be formally recognized by a lead agency as a historic resource and/or be eligible for listing on the California Register of Historic Resources (CRHR) (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 4852). However; the fact that a resource is not yet identified as a historic resource or found eligible for the CRHR does not preclude a lead agency from determining that it may be a historic resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

Appendix F lists all recorded historical buildings and structures within the city limits by address (if available) and type of designation, including property on the National Register of Historic Places, California State Landmark, Eligible for State and/or National Designation, Historic District, and Locally-Designated Historic Resource, based upon the National Register Status Code assigned to each property by the California Office of Historic Preservation, as identified by the Northwest Information Center, and by the City through the historic resource inventories completed in 1978 and 2006. Some buildings, including those inventoried by Page & Turnbull in 2006, have not yet been assigned a National Register Status Code, although most of these appear to be eligible for the National and California registers.

Figure 3.5-1 identifies the 34 buildings in the St. Helena Historic Commercial District considered to be contributors to the district's historic character or significance. It does not include non-contributors, which are those buildings that, due to date of construction, alterations, or other factors, do not contribute to the historic character of the district.

Numerous historical buildings and structures have been recorded within city limits (see Appendix F). The most common historical property types consist of residences and commercial buildings, although other property types are present, including barns, warehouses, wineries, churches, schools, bridges, a culvert, street lights, a motel, tankhouses, stonework, roads, a railroad depot, and

government buildings. The majority of these properties were recorded as part of the 1977-1978 Napa County Historic Resources Inventory conducted by Napa Landmarks, Inc. and the historical architectural survey conducted by Page & Turnbull, Inc. in 2006.

Eleven historical resources within the city are listed in the National Register of Historic Places and California Register of Historical Resources, as listed in Appendix F and shown in Figure 3.5-1. Two of these historical resources—the Beringer Winery Historic District and the Main Street Commercial Historic District—include multiple buildings and structures. Numerous other historical buildings in St. Helena appear eligible for listing in the National and California registers, which would qualify such properties as historical resources for purposes of CEQA (see Appendix F).

Figure 3.5-1

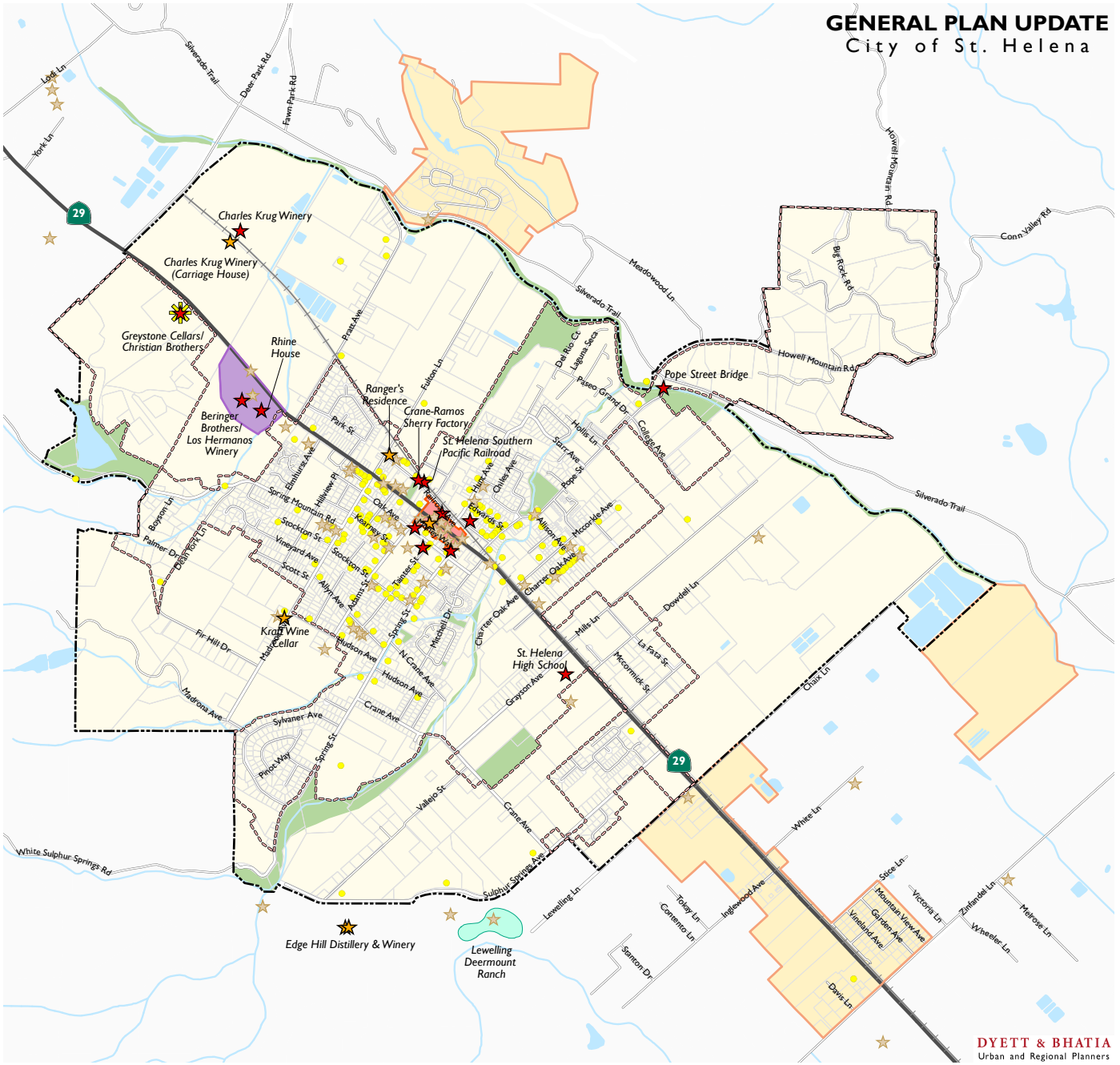
Historic Resources

- National Register
- California Register
- State Landmark
- Eligible for National Register or California Register
- Locally-Designated Resources

National Historic

- St. Helena Historic Commercial District
- Beringer Winery Historic District
- Lewelling "Deermount" Ranch Historic District

- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.5-2

Historic Resources Downtown St. Helena

- National Register
- California Register
- Eligible for National Register or California Register
- Contributor to Historic District
- Locally-Designated Resources
- St. Helena Historic Commercial District
- Parks and Open Space
- Urban Limit Line
- Study
- City of St. Helena

0 62.5 125 250 Feet

Data Source: California Historical Resources Information System, Northwest Information Center, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Paleontological Setting

St. Helena lies in an alluvial valley formed by tectonic faulting. The Vaca Mountain range lies to the east, and the Mayacamas Mountains to the west; both consist mostly of Sonoma Volcanics. The erosion of Sonoma Volcanics in and around St. Helena and the subsequent fluvial transportation of sediment resulted in the deposition of alluvium (Sloan, 2006; U.C. Davis Soil Resource Laboratory, 2009). The sediments that underlie St. Helena are Quaternary (1,800,000 years B.P.[1] to present) alluvial deposits laid down by the Napa River and the York, Heath Canyon, and Sulphur Creeks exiting the hills to the west of St. Helena. The Quaternary deposits in St. Helena include moderately sorted, coarse-grained Holocene (10,000 years B.P. to present) alluvium and poorly sorted Late Pleistocene (126,000 to 10,000 years B.P.) alluvium.

Geologic Units

St. Helena is underlain by the following geological units, described in stratigraphic sequence from youngest (Quaternary Deposits) to oldest (Franciscan Complex). See Section 3.7 Geology and Seismicity for more detailed information on the geology of the Planning Area.

Quaternary Deposits

Quaternary deposits of Pleistocene (1,800,000 to 10,000 years B.P.) and Holocene (10,000 years B.P. to present) age occur in the Napa Valley. These deposits consist of loosely consolidated sand and gravel deposited in fluvial systems (Helley, La Joie, Spangle, & Blair, 1979). Older Pleistocene deposits typically occur as terraces incised by Holocene fluvial drainages. Locally, Late Pleistocene (126,000 to 10,000 years B.P.) deposits contain invertebrate and extinct vertebrate fossils, many of which are representative of the Rancholabrean land mammal age (Bell, et al., 2004). Fossils found in alluvium of this age include, but are not limited to, bison, mammoth, ground sloths, saber-toothed cats, dire wolves, horses, cave bears, rodents, birds, reptiles, and amphibians (Bell, et al., 2004) (Helley, La Joie, Spangle, & Blair, 1979) (Helley, LaJoie, & Burke, 1972) (Hertlein, 1951) (Savage, 1951) (Stirton, 1951).

Sonoma Volcanics

Underlying the Quaternary alluvium, at an unknown depth, is a sequence of Pliocene (53,000,000 to 1,800,000 years B.P.) Sonoma Volcanic andesitic tuff (Wagner & Bortugno, 1999). Andesitic tuff may contain invertebrate and extinct vertebrate fossils representative of the Hemphillian (9,000,000 to 4,750,000 years B.P.) and Blancan (4,750,000 to 1,800,000 years B.P.) land mammal ages (Berkeley Natural History Museum, 2009).

Franciscan Complex

Presumably underlying the Napa Valley at great depth is the Franciscan Complex, a group of high-pressure and low-temperature metamorphic rocks formed during the Middle and Upper Jurassic (175,000,000 to 144,000,000 years B.P.) and the Lower Cretaceous (144,000,000 to 100,000,000 years B.P.). The Franciscan Complex is composed of metamorphosed and unmetamorphosed sandstone, shale, conglomerate, chert, greenstone, and metagraywacke, and is the basement rock of the region (Wagner & Bortugno, 1999) (Sloan, 2006). Marine fossils, including *Icthysaurus*, *Belemnoidea*,

[1] Before Present (B.P.).

Buchia, and *Inoceramus*, occur in the unmetamorphosed rocks of the Franciscan Complex (Berkeley Natural History Museum, 2009).

Identified Paleontological Resources

Under the California Environmental Quality Act (CEQA) paleontological resources are also analyzed for cultural resource impacts and are generally defined as fossil plants and animals and evidence of past life such as trace fossils and tracks. Paleontological resources are the fossil remains or traces of past life forms, including both vertebrate and invertebrate species, as well as plants.

While no recorded paleontological resources have been identified in the Planning Area, including a search of the University of California Museum of Paleontology Specimen Search, the general area is underlain by Quaternary period Holocene and Pleistocene deposits, the latter of which can contain significant Rancholabrean fossils. The depths of these deposits are unknown, but likely extend for several feet below the ground surface. Below these Quaternary deposits are deposits that date from the Pliocene to the Middle Jurassic periods. These older deposits, due to their potential to contain sensitive or significant paleontological resources, are most likely at considerable depths below the ground surface. Additionally, paleontological resources have been recorded within Napa County. Therefore, there is a possibility for paleontological resources to be discovered in St. Helena.

Archaeological Resources

The National Parks Service defines archaeological resources as any material remains of human life or activities that are at least 100 years of age and are capable of providing scientific or humanistic understandings of past human behavior, cultural adaptation, and related topics. The St. Helena area contains 49 recorded archaeological resources, including 34 recorded Native American archaeological resources, 15 historic-period archaeological resources, as well as two informal Native American archaeological resources. These sites include habitation and tool processing sites, hearths, bedrock milling features, burials, fences, trash scatters, orchards, and ranches. The California Office of Historic Preservation has assigned a National Register Status Code of "2S2" to prehistoric[2] archaeological site P-28-000151, indicating this resource was "determined eligible for National Register by a consensus through Section 106 process. Listed in the California Register."

Additional prehistoric archaeological deposits may be located within the Planning Area, and project-specific reviews would need to be done to assess potential impacts on archaeological sites. While St. Helena has witnessed commercial and residential development, such development does not preclude the possibility of intact historical archaeological deposits. Native American archaeological resources in Napa County have been found throughout the Napa Valley, on ridges, midslope benches, near the hill to valley interface, in valleys lands, near ecotones, and near intermittent and perennial watercourses. Additionally, Sanborn Fire Insurance maps from 1886, 1890, 1899, and 1910 indicate numerous buildings and structures within the Planning Area. Given the presence of known archaeological resources, there is a high potential for additional unrecorded Native American resources and historic-period archaeological resources in to be discovered within

[2] The prehistoric period is the period in human history before recorded events, known mainly through archaeological discoveries, study, research, etc.

the Planning Area during implementation of the Proposed Plan. The possibility of such deposits, however, must be evaluated on a project-specific basis.

Tribal Cultural Resources

A tribal cultural resource is a site, feature, place, cultural landscape, sacred place, or object with cultural value to a tribe that is included or determined to be eligible for inclusion in the California Register of Historic Resources, included in a local register of historical resources, or otherwise determined to be significant by the lead agency of an environmental review process.

AB 52 expands the government-to-government consultation originally outlined in SB 18 and requires CEQA documents to examine tribal cultural resources, which is a more broadly-defined concept that is more akin to traditional tribal landscapes (i.e., geographic areas or features) than to the specific archaeological sites or artifacts that were considered in the past. Since this is a program EIR for a general plan, the City is required to consult with local Native American tribal groups/representatives under both SB 18 and AB 52 (see "Regulatory Setting" below for more information).

Pursuant to SB 18 and AB 52, the City contacted the California Native American Heritage Commission (NAHC) in February 2016 and May 2018 to request a search of its Sacred Lands File and to obtain a list of California Native American tribes whom the City would engage for the purposes of avoiding, protecting, and/or mitigating impacts on cultural resources. The NAHC provided the City with a list of five California Native American tribes to contact in accordance with SB 18- the Cortina Band of Indians, Middletown Rancheria of Pomo Indians, two contacts from the Federated Indians of Graton Rancheria, and the Yocha Dehe Wintun Nation. Of the six tribes contacted by the City, the five previously listed as well as the Mishewal Wappo Tribe of Alexander Valley, only one response, from the Federated Indians of Graton Rancheria, was received. The tribal contact did not identify any cultural resources in the Planning Area (see Appendix F for related materials).

An NWIC records search of the Planning Area yielded 34 recorded and two informally-recorded Native American archaeological resources, which included burials. A search of the Native American Heritage Commission (NAHC) Sacred Lands File for the Planning Area in May 2018 identified sacred sites in the Planning Area. The location of these resources has not yet been identified, but the opportunity exists for future developments to discover tribal cultural resources.

REGULATORY SETTING

Federal Regulations

National Historic Preservation Act and Section 106

The intent of the National Historic Preservation Act is to preserve historic and archaeological sites across the United States. The Act solidified the role of the National Parks Service as lead agency in the historic preservation program and created cooperative partners in the process, including the Advisory Council on Historic Preservation, State Historic Preservation Offices, and Tribal Historic Preservation Offices. Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their actions on historic properties. The goal of the Section 106 process is to identify historic properties potentially affected by the action in question, assess the

effects, and provide ways to avoid, minimize, or mitigate any adverse effect that may occur to a historic property.

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's official list of historic places. The register is overseen by the National Park Service and requires that a resource eligible for listing on the register meet one of several criteria at the national, State, or local level and also retain sufficient physical integrity of those features necessary to convey historic significance. Resources listed in the National Register are automatically listed in the California Register. The criteria for listing are:

- Property is associated with events that have made a significant contribution to the broad patterns of our history;
- Property is associated with the lives of persons significant in our past. Eligible properties based on this criterion are generally those associated with the productive life of the individual in the field in which it achieved significance;
- Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction; or
- Property has yielded, or is likely to yield, information important to prehistory or history.

In addition to meeting at least one of these four criteria, listed properties must also retain sufficient physical integrity of those features necessary to convey historic significance. The register has identified the following seven aspects of integrity: (1) location, (2) design, (3) setting, (4) materials, (5) workmanship, (6) feeling, and (7) association. Properties are nominated to the register by the State Historic Preservation Officer of the state in which the property is located, by the Federal Preservation Officer for properties under federal ownership or control, or by the Tribal Preservation Officer if on tribal lands.

Listing in the NRHP provides formal recognition of a property's historic, architectural, or archeological significance based on national standards used by every state. Once a property is listed on the NRHP, it becomes searchable in the NRHP's database of research information. Documentation of a property's historic significance helps encourage preservation of the resource. Listing in the NRHP provides incentives to property owners such as: federal preservation grants for planning and rehabilitation federal investment tax credits, preservation easements to nonprofit organizations, international building code fire and life safety code alternatives, state tax benefits, and grant opportunities. The Federal Tax Incentive Program encourages private sector rehabilitation of historic buildings and is a successful and cost-effective community revitalization program, which generates jobs and creates moderate and low-income housing in historic buildings. Listing does not lead to public acquisition or require public access. In addition, listing does not place any obligations on the private property owners; and there are no restrictions on use, treatment, transfer, or disposition of private property.

There are several properties within the Planning Area that are listed on the NRHP, as seen on Figure 3.5-1 and in Appendix F.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA created an environmental review process requiring federal agencies to consider the effects of their actions on the environment. Under NEPA, all federal agencies must carry out their regulations, policies, and programs in accordance with NEPA's policies for environmental protection, including project compliance with Section 106 of the National Historic Preservation Act, as previously discussed.

National Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) was passed in 1990 to provide for the protection of Native American graves. The act conveys to Native American's of demonstrated lineal decent, the human remains, including the funerary or religious items, that are held by federal agencies and federally supported museums, or that have been recovered from federal lands. NAGPRA makes the sale or purchase of Native American remains illegal, whether or not they were derived from federal or Native American lands.

State Regulations

California Historic Resources

The California Office of Historic Preservation (OHP) offers four different registration programs, including the California Historical Landmarks, California Points of Historical Interest, California Register of Historical Resources, and the NRHP. Each registration program is unique in the benefits offered and procedures required. If a resource meets the criteria for registration, it may be nominated by any individual, group, or local government to any program at any time. Resources do not need to be locally designated before being nominated to a state program nor do they need to be registered at the state level before being nominated to the National Register. The California Register includes buildings and the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Resources on the California Register have met criteria for designation or have been included due to their presence on the NRHP, the State Historical Landmark program, or the California Points of Historical Interest program.

State Historical Landmark Program

California Historical Landmarks are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of several criteria. The resource must be the first, last, only, or most significant of its type in the state or within a large geographic region; associated with an individual or group having a profound influence on California history; or be a prototype of, or outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or best surviving work in a region of a pioneer, designer, or master builder. There is one building within the Planning Area that is designated as a State Historical Landmark, as seen on Figure 3.5-1 and in Appendix F.

California Points of Historical Interest

In addition to Landmarks, the Planning Area contains California Points of Historical Interest, which are sites, buildings, features, or events of local (city or county) significance, having

anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Criteria are the same as those for Historical Landmarks but directed to local areas. No historical resource may be designated as both a Landmark and a Point; if a Point is subsequently granted status as a Landmark, the Point designation will be retired (California OHP).

California Environmental Quality Act

A "historical resource" includes, but is not limited to, any object, building, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. CEQA mandates that lead agencies consider a resource "historically significant" if it meets the criteria for listing in the California Register of Historic Resources (California Register). Such resources meet this requirement if they (1) are associated with events that have made a significant contribution to the broad patterns of California history, (2) are associated with the lives of important persons in the past, (3) embody distinctive characteristics of a type, period, region, or method of construction, and/or (4) represent the work of an important creative individual or possesses high artistic value. These criteria mimic the criteria utilized to determine eligibility for the National Register.

In addition, Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5(f) recognize that historical or unique archaeological resources other than potential Native American burials may be accidentally discovered during project construction. This guideline recommends that immediate evaluation defined by qualified archaeologists be included in mitigation measures. This guideline also recommends that if the find is determined to be a historical or unique archaeological resource, that contingency funding and time allotments sufficient to allow for implementation and avoidance measures be available.

California Government Code Section 65040.2(g)

California Government Code Section 65040.2(g) provides guidelines for consulting with Native American tribes for the following: (1) the preservation of, or the mitigation of impacts on places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code; (2) procedures for identifying through NAHC the appropriate California Native American tribes; (3) procedures for continuing to protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects; and (4) procedures to facilitate voluntary landowner participation to preserve and protect the specific identity, location, character, and use of those places, features, and objects.

Senate Bill 18 (SB 18)

Signed into law in September 2004, and effective March 1, 2005, SB 18 permits California Native American tribes recognized by the NAHC to hold conservation easements on terms mutually satisfactory to the tribe and the landowner. The term "California Native American tribe" is defined as "a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC." The bill also requires that, prior to the adoption or amendment of a city or county's general plan, the city or county consult with California Native American tribes for the purpose of preserving specified places, features, and objects located within the city or county's jurisdiction. SB 18 also applies to

the adoption or amendment of specific plans. This bill requires the planning agency to refer to the California Native American tribes specified by the NAHC and to provide them with opportunities for involvement.

Assembly Bill 52 (AB 52)

AB 52, passed in 2014, establishes a consultation process with all California Native American Tribes on the Native American Heritage Commission List and federally non-recognized tribes. It establishes a new class of resources: tribal cultural resources, and consideration is now given to Tribal Cultural Values in the determination of project impacts and mitigation. It requires Tribal notice and meaningful consultation (Public Resources Code 21080.3.2(b)). Consultation ends when Parties either agree to mitigation measures or avoid a significant effect on tribal cultural resources. Per AB 52 requirements, NAHC was contacted in 2016 and 2018 to request a tribal consultation list and review of the Sacred Lands File. Results of that outreach are included in the Setting section above and are included in Appendix F.

Tribes must submit a written request to the lead agency requesting to be notified of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe. (§21080.3.1(b)(1)). The lead agency must submit written notification to the tribe that requested notification within 14 days of determining that an application for a project is complete – notification must include project description and proposed location. (§21080.3.1(d)). Tribes must submit written response within 30 days of receiving notification requesting consultation. Tribes must designate a lead contact person. If no designation, or if a tribe designates multiple lead contacts, the lead agency shall consult with Native American Heritage Commission's SB 18 list contact person. (§21080.3.1(b)(2)). Consultation shall begin prior to the release of the environmental document. (§21080.3.1(b)). Consultation shall include discussion regarding alternatives, recommended mitigation measures, or significant effects, but only if the tribe requests consultation regarding these issues. (§21080.3.2(a)).

Consultation may include discussion concerning the type of environmental review necessary (in circumstances where consultation begins prior to that determination), the significance of tribal cultural resources, the significance of a project's impacts on tribal cultural resources, and, if necessary, project alternatives or mitigation measures. (§21080.3.2(a)). Any mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. (§21082.3 (a)). Consultation shall be concluded when either occurs (§21080.3.2(b)):

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that a mutual agreement cannot be reached.

A "tribal cultural resource" is one of the following (§21074):

a. A site, feature, place, cultural landscape, sacred place, and object with cultural value to the tribe that is either (1) included or determined to be eligible for inclusion in the California Register of Historical Resources or (2) included in a local register of historical resources; or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

California Public Resources Code

Sections 5097–5097.6 of the California Public Resources Code outline the requirements for cultural resource analysis prior to the commencement of any construction project on state lands. The state agency proposing the project may conduct the cultural resource analysis or they may contract with the State Department of Parks and Recreation. In addition, this section stipulates that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California NAHC whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

The Public Resources Code Section 5097.9-991, regarding Native American heritage, outlines protections for Native American religion from public agencies and private parties using or occupying public property. Also protected by this code are Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property.

California Health and Safety Code

The California Health and Safety Code Section 7050.5 states that if human remains are discovered, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur. Section 7052 of the California Health and Safety Code makes the willful mutilation, disinterment, or removal of human remains a felony.

Local Regulations

St. Helena Municipal Code

Chapter 16.32 Design Standards and Improvements

Section 16.32.140 of the Municipal Code requires that subdivisions[5] affecting resources described in the existing General Plan and any applicable specific plan include a survey by a qualified archaeologist prior to development "whenever significant archeological or paleontological sites may be located within the project area." Mitigation measures for archaeological and/or paleontological resources must be implemented prior to development of the project site.

Chapter 17.48 Central Business (CB) District

Chapter 17.48 establishes a Central Business (CB) district to provide for "retail, personal service uses, offices, restaurants, hotels/motels, service stations, public and quasi-public uses, and similar

and compatible uses that serve local residents and the surrounding area" (Section 17.48.010). This zoning prohibits demolition of a significant architectural or historical building—as determined by the Planning Commission—unless the Commission finds that (1) the structure poses a threat to health, safety and general welfare if it is not demolished; (2) that restoration of the structure is not feasible or practicable using current building codes including, but not limited to, the Historic Building Code provision of the Uniform Building Code of the state; and (3) that no public or other funding is available for financing State Historic Building Code, as amended and adopted by the City.

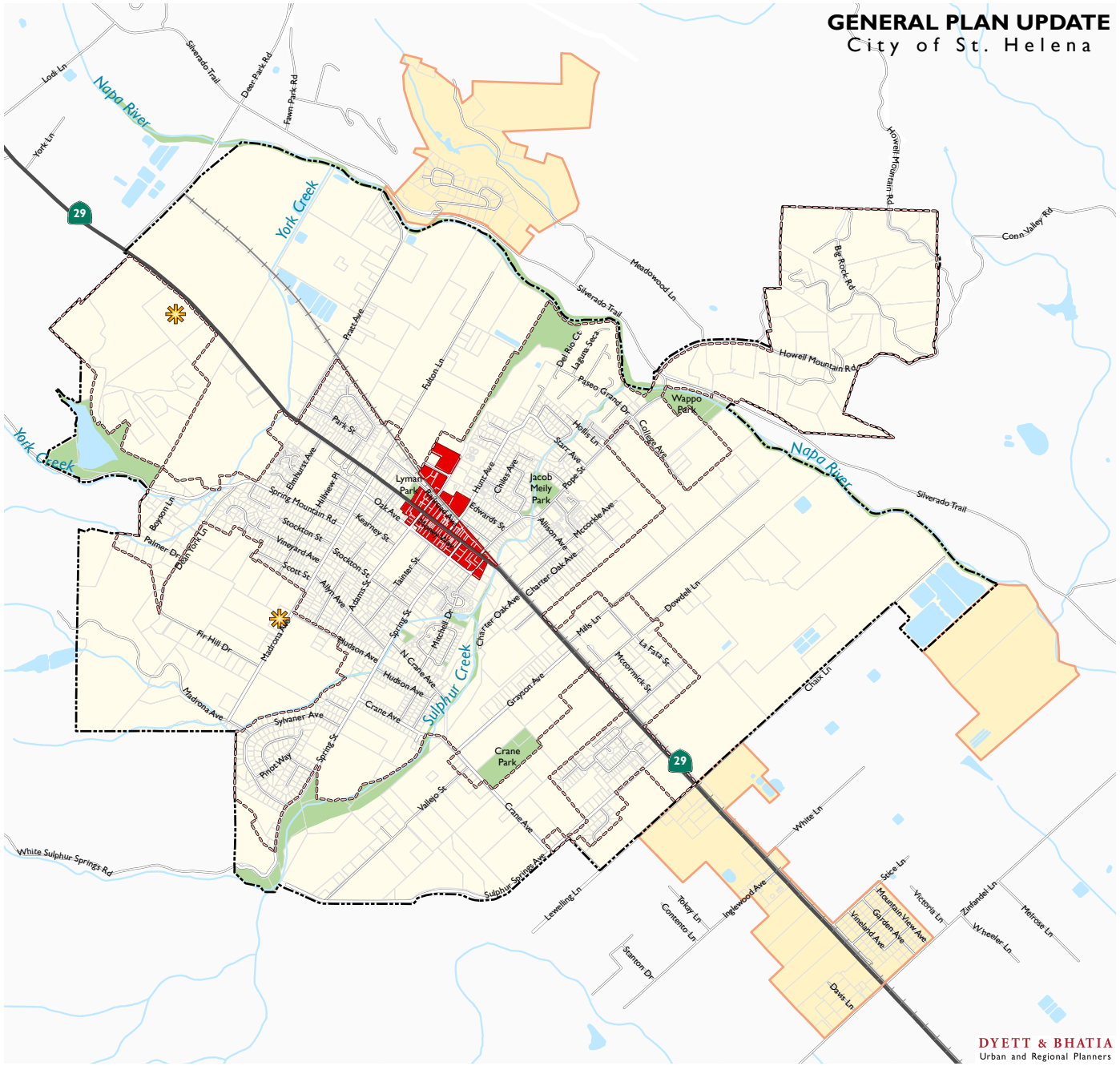
Chapter 17.92 Historic Preservation Overlay (HP) District

Chapter 17.92 establishes a Historic Preservation Overlay (HP) district "to preserve the unique architectural character of those certain specific structures which have contributed to the City's historic development" (Section 17.92.020). The Planning Commission must determine buildings that will be protected within an HP overlay district. Protections include restrictions on historically inappropriate exterior alterations, demolition, and restoration, and economic incentives for preservation of significant buildings.

Figure 3.5-3

Central Business and Historic Preservation Overlays

- CB Central Business Zoning District
- HP Historic Preservation Overlay
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Chapter 17.164 Design Review

Per Chapter 17.164 of the St. Helena Municipal Code, all demolition of an existing building is discretionary under the design review process, except when required for the emergency protection of public health, safety or welfare as determined by the city manager.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Cause a substantial adverse change in the significance of a historical resource as defined in CEQA § 15064.5;**

Criterion 2: **Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA § 15064.5;**

Criterion 3: **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;**

Criterion 4: **Disturb any human remains, including those interred outside of formal cemeteries; or**

Criterion 5: **Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native Tribe and that is:**

- **i) Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or**
- **ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

METHODOLOGY AND ASSUMPTIONS

The analysis of potential cultural resources impacts is based upon a comprehensive records search conducted at the NWIC at Sonoma State University. The records search included a review of all recorded historic and prehistoric cultural resources within the Planning Area. In addition, the

California State Historic Property Data File (HRI), which includes the National Register of Historic Places (National Register), California Historical Landmarks, and California Points of Historical Interest was examined. The analysis also included a search of the NAHC Sacred Lands File, consultation with NAHC and local tribes, review of City of St. Helena documents, State regulations, and Proposed Plan goals, policies, and actions.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to historic, cultural, and tribal cultural resources in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to historic, cultural, and tribal cultural resources in the study areas. Cumulative impacts related to historic, cultural, and tribal cultural resources are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

The Proposed Plan includes the following policies and implementing actions that address cultural resources and are relevant to the current analysis:

Land Use Element

- ***LU3.4*** Protect historic resources in the commercial areas and encourage appropriate rehabilitation and adaptive reuse.

Historic Resources Element

- ***HR1.1*** Preserve the City's historic and cultural resources, so that they may contribute to the special character and quality of the City and support its economic base.
- ***HR1.2*** Protect the historic resources that exist in the downtown commercial area.
- ***HR1.3*** Encourage the adaptive reuse, rehabilitation and retrofit of historic buildings in which the original use is no longer feasible.
- ***HR1.5*** For development and redevelopment proposals in archaeologically, tribal cultural, and paleontologically sensitive areas of St. Helena, require an assessment of the potential presence of archaeological, tribal cultural and paleontological resources, including a site survey and a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC). As warranted by the results of the assessment, require additional studies to identify and address project-specific impacts on archaeological, tribal cultural, and paleontological resources. The City shall incorporate the study recommendations as project conditions of approval to ensure that impacts on archaeological, tribal cultural, and/or paleontological resources are mitigated to the extent possible. Studies shall be prepared according to National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

- ***HR1.6*** For development or redevelopment on a site that contains any structures over 45 years old, require a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC) to determine the presence of historic resources. As warranted by the results of the records search, the City shall require evaluation of structures over 45 years old to determine their historical significance. Studies shall be prepared according to National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.
- ***HR1.A*** Adopt a historic preservation ordinance to implement the policies recommended in the Historic Resources Element.
- ***HR1.D*** Develop an incentive program to encourage property owners to participate in historic preservation efforts. Potential program measures can include alternate building codes for historic structures and financial incentives, where necessary.
- ***HR1.E*** Consolidate and update the existing inventories of historic buildings and houses and develop criteria to add to the list.
- ***HR1.H*** Regularly update the Historic Resources Inventory to ensure that is includes a current list of historic structures in the City.
- ***HR1.I*** Incorporate the preservation of historic resources into a citywide urban design plan.
- ***HR2.1*** Strengthen public awareness of and support for the preservation and protection of the City's historic resources.
- ***HR2.D*** Conduct a survey of historic resources to determine different architectural types in the City and develop design guidelines specific to style and period.

Community Design Element

- ***CD1.6*** Encourage the adaptive reuse, rehabilitation and retrofitting of historic buildings in which the original use is no longer feasible.

IMPACTS

Impact 3.5-1 Implementation of the Proposed Plan could cause a substantial adverse change in the significance of a historical resource, as defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired (CEQA Guidelines Section 15064.5). (*Less than Significant*)

New development as a result of implementation of the Proposed Plan could result in a significant impact if construction caused the demolition, destruction, relocation, or alteration of a historic resource. Historic resources are located throughout the Planning Area, with a majority of resources located along Main Street between Spring and Adams streets. No new development is proposed within a historic district in the Proposed Plan, and while most of the Change Areas identified in Figure 2.1-4 do not overlap with any historic structures, several Change Areas, including change areas 3, 5, 7, and 13, do overlap with potential historic resources. Therefore, while implementation is unlikely to negatively impact any known historic resources, future development and

redevelopment permitted under the Proposed Plan could result in changes that affect both known and undiscovered historic resources.

To reduce the potential impact of construction on historic resources, at the time development or redevelopment projects are proposed, the project-level CEQA document would need to identify potential impacts on known or potential historic sites and structures. CEQA Guidelines require a project that will have potentially adverse impacts on historical resources to conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties. Section 16.32.140 of the St. Helena Municipal Code establishes procedures for archaeological surveys and mitigation measures for archaeological and/or paleontological resources. Additionally, chapters 17.48 and 17.92 establish protections for significant architectural or historical buildings within the city, including discretionary permits for demolition.

As listed above, the Proposed Plan includes multiple policies and implementing actions that attempt to mitigate impacts on historical built resources through protection, rehabilitation, and adaptive reuse. These policies and actions encourage (1) design/development standards for new construction and remodeling projects to ensure that such projects would not adversely affect the historical integrity of adjacent historical buildings and structures, (2) adaptive reuse of historic buildings, and (3) preservation of historic buildings and neighborhoods. These policies and implementing actions would also mitigate potential impacts on historic districts or historical buildings from development that may occur in Change Areas identified in the Proposed Plan (see Figure 2.1-4 in Chapter 2, Project Description, of this EIR) by use of design standards and/or form-based codes that ensure new construction would complement the neighborhood's historical setting. Specifically, policies LU3.4, HR1.1, HR1.2, HR1.3, and HR 1.4, and implementing actions HR1.A, HR1.D, HR1.I, and CD1.6 encourage the preservation and reuse of historic resources. Policy HR1.6 and implementing actions HR1.E, HR1.H, HR2.1, and HR2.D protect historic resources by ensuring records of existing resources are accurate and easily accessible.

Therefore, the impact of implementation of the Proposed Plan on historical resources would be less than significant with implementation of existing regulations and the proposed policies and implementing actions.

Mitigation Measures

None required.

Impact 3.5-2 Implementation of the Proposed Plan could cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (*Less than Significant*)

Future public and private development projects could create a significant impact if it results in the disturbance of recorded and unrecorded archaeologic resources due to site grading, construction of building foundations, trenching for utilities and/or similar activities that would disturb existing ground surfaces.

Although implementation of the Proposed Plan may result in actions that could adversely affect archaeological resources, policies in the Proposed Plan and existing regulations would minimize or avoid impacts by requiring the protection and preservation of such resources. Proposed Plan

Policy HR1.5 would require the City to conduct a records search at the Northwest Information Center (NWIC) for future development projects that have the potential for archaeological resources to determine the potential to affect cultural resources and to incorporate any recommendations provided by the NWIC into the final design of the project.

Regarding undiscovered resources, Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5(f) recognize that historical or unique archaeological resources may be accidentally discovered during project construction and guidelines recommend that if a potential resource has been discovered, that an immediate evaluation by a qualified archaeologist be included in mitigation measures. Policy HR1.5 requires that the City incorporate the NWIC study recommendations as project conditions of approval to ensure that impacts on archaeological resources are mitigated.

The impact of implementation of the Proposed Plan on archaeological resources would be less than significant, with implementation of existing State recommendations and the proposed policy listed above.

Mitigation Measures

None required.

Impact 3.5-3 Implementation of the Proposed Plan would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (*Less than Significant*)

Future development and redevelopment allowed under the Proposed Plan could result in direct or indirect impacts on paleontological resources. Construction activities such as grading, excavation, and ground-disturbing activities may result in the accidental destruction or disturbance of paleontological sites. While no paleontological resources have been discovered within the Planning Area to-date there is potential that resources could be found in the future.

Policy HR1.5 in the Proposed Plan would reduce the potential impact on paleontological resources by requiring an assessment of the potential for paleontological resources, including a site survey, for development and redevelopment proposals in paleontologically sensitive areas of St. Helena. This policy also requires, as warranted by the results of the assessment, additional studies to identify and address project-specific impacts on archaeological and paleontological resources that shall be incorporated as project-specific conditions of approval to ensure that impacts on paleontological resources are mitigated. The impact of implementation of the Proposed Plan on paleontological resources would therefore be less than significant with implementation of Policy HR1.5.

Mitigation Measures

None required.

Impact 3.5-4 Development allowed by the Proposed Plan would have the potential to disturb human remains, including those interred outside of formal cemeteries. (*Less than Significant*)

Human remains, particularly those interred outside of formal cemeteries, could be disturbed during grading, excavation, or other ground-disturbing activities associated with future development or redevelopment projects allowed under the Proposed Plan. Of the 34 recorded Native American archaeological resources found in the Planning Area, some have been described as burials. While the exact location of these resources is unknown, they are most commonly found within Napa County on ridges, midslope benches, near the hill to valley interface, in valleys lands, near ecotones, and near intermittent and perennial watercourses. Therefore, these types of locations within the Planning Area may be most sensitive to the discovery of Native American resources, including human remains.

The treatment of Native American human remains is regulated by Public Resources Code Section 5097.98, as amended by Assembly Bill 2641, which addresses the disposition of Native American burials, protects remains, and appoints the NAHC to resolve disputes. In addition, as noted in the Regulatory Setting, California Health and Safety Code Section 7050.5 includes specific provisions for the protection of human remains in the event of discovery, and Section 7052 makes the willful mutilation, disinterment, or removal of human remains a felony. The Health and Safety Code is applicable to any project where ground disturbance would occur.

Policy HR1.5 in the Proposed Plan would further reduce the potential impact on archaeological and tribal cultural resources, including human remains, by requiring an assessment of the potential for such resources, including a site survey and a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC), for development and redevelopment proposals in archaeologically or tribal cultural sensitive areas of St. Helena. This policy also requires, as warranted by the results of the assessment, additional studies to identify and address project-specific impacts on archaeological resources that shall be incorporated as project-specific conditions of approval to ensure that impacts on such resources are mitigated.

The impact of implementation of the Proposed Plan on human remains would therefore be less than significant with implementation of existing State regulations and proposed General Plan Policy HR1.5.

Mitigation Measures

None required.

Impact 3.5-5 Implementation of the Proposed Plan could cause an adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size

and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

(a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

(b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (*Less than Significant*)

Future development allowed under the Proposed Plan could result in direct or indirect significant impacts through grading, overland vehicle travel, or other ground-disturbing activities, or through facilitation of public access to culturally significant sites. As a result of tribal consultation and an NWIC records request, the Planning Area contains 34 known recorded Native American archaeological resources and two informally-recorded Native American archaeological resources. While the exact location of these resources is not public information, it is typical for Native American resources to be located near water bodies, therefore development near the Napa River or creeks within the Planning Area may result in the discovery of additional resources.

Policy HR1.5 in the Proposed Plan would minimize or avoid potential impacts on any resources known or not known at this time that may be encountered in the future and would promote coordination with Native American tribes if any tribal resources are discovered at development sites. The impact of implementation of the Proposed Plan on Native American tribal cultural resources would therefore be less than significant with implementation of the proposed policies and actions of the Proposed Plan.

Mitigation Measures

None required.

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3.6 Energy, Greenhouse Gases, and Climate Change

This section assesses potential environmental impacts related to energy use, greenhouse gases (GHGs), and climate change from future development under the Proposed Plan. This section describes existing energy usage, GHG emissions, and sources of GHGs in the Planning Area, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

Energy

California is the second largest consumer of energy in the United States. However, California's per capita energy consumption is relatively low, due in part to mild weather that reduces energy demand for heating and cooling and in part to the State's energy efficiency programs and standards. As of 2016, petroleum and natural gas supply the majority of the energy consumed in California (U.S. Energy Information Administration, 2017).

The concept of sustainable energy generally refers to renewable energy sources, such as solar power, wind power, wave power, geothermal power, tidal power, and biomass, as well as technologies that improve energy efficiency. Energy conservation refers to efforts made to reduce energy consumption in order to preserve future resource capacities and reduce pollutants. Energy conservation can be achieved through increased energy efficiency, decreased energy consumption, and/or reduced consumption from conventional, nonrenewable energy sources.

State Energy Conditions

Electricity

In 2017, California used over 292,000 gigawatt-hours of electricity (California Energy Commission, 2018). Electricity use in California for differing land uses varies substantially by the type of uses in a building, type of construction materials, and the efficiency of electricity-consuming devices.

Because of the State's energy efficiency standards, as well as efficiency and conservation programs, California's per-capita electricity use has remained stable for more than 30 years while the national average steadily increased. The California Energy Commission's (CEC's) 2017 Integrated Energy

Policy Report Update estimates that electricity consumption will grow by up to 1.59 percent per year between 2017 and 2030, with peak demand growing at an average of 1.52 percent annually over the same period. Projections for energy consumptions have increased since 2016, largely due to the increasing use of electric vehicles and the growing industrial sector (Chris, et al., 2018).

Of electricity generated in California in 2017, 43.4 percent is from natural gas, 17.9 percent from hydroelectric, 8.7 percent is from nuclear power plants, and 11.8 percent is from solar production. Other sources include coal-fired power plants and other renewable energy sources, such as wind turbines. California also imports electricity from out of state (California Energy Commission, 2018).

Natural Gas

In 2016, California used approximately 13 billion therms of natural gas (Chris, et al., 2018). California is the second largest natural gas consumer in the United States, representing more than 10 percent of the total national natural gas consumption. In 2016, residential uses accounted for the greatest amount of the state's natural gas demand (33.5 percent), followed by industrial uses (27.7 percent), mining (20.7 percent), and commercial uses (15.4 percent) (Leon, Orta, Puglia, Dixon, & Gulliksen, 2017). California remains heavily dependent on natural gas to generate electricity, which comprise roughly 43 percent of the state's natural gas demand (California Energy Commission, 2018).

The CEC's 2017 Integrated Energy Policy Report forecasts that natural gas consumption by end users (excluding electricity generation) is expected to grow by up to 0.77 percent annually through 2030 (Chris, et al., 2018).

Petroleum

In 2016, California used approximately 672 million barrels of petroleum, predominantly as transport fuels in products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel (U.S. Energy Information Administration, 2017). However, due to the rising costs of these fuels and the enforcement of federal Renewable Fuel Standard (RFS) and the California Low Carbon Fuel Standard (LCFS), California is diversifying its transportation energy sources, increasing fuel efficiency, and adapting land use and development to reduce energy use for transportation.

Local Energy Conditions

The City of St. Helena joined Marin Clean Energy (MCE), a Community Choice Aggregation (CCA) program, in 2016. In 2002, California Assembly Bill (AB) 117 passed, allowing groups of communities to purchase power on behalf of their residents and businesses, completely supported by revenues rather than taxpayer subsidies. AB 117 paved the way for CCAs to form as alternatives to Investor Owned Utilities (IOUs), such as Pacific Gas and Electric (PG&E), where communities could source electricity more directly and have more ownership about the amount of renewable energy in a utility's portfolio.

MCE, which launched in 2010 as the first CCA in California, generates its electricity from hydroelectric, natural gas, geothermal, wind, solar, and biomass/biowaste resources. A portion of MCE's 2016 power mix is also from unspecified sources of power, which means it is not traceable

to specific generation sources. Residents of the City of St. Helena are automatically enrolled in the Light Green Power Mix, which sources at least 50 percent of its energy from renewable sources. Customers can also opt-up to the Deep Green Power Mix, which is 100 percent renewable energy, or opt-out and be provided electricity through PG&E. Unincorporated Napa County, including the study areas, is also served by MCE. It is estimated that approximately 11 percent of Napa County has opted out of MCE (Marin Clean Energy, 2016). PG&E's 2017 power mix was approximately 33 percent renewable energy (Schmitz, 2018).

Table 3.6-1: Annual Residential, Commercial, and Industrial Electricity Use shows approximate electricity usage in the City of St. Helena for the residential, commercial, and industrial sectors in 2017. Due to privacy rules, commercial and industrial electricity use have been aggregated. In St. Helena, commercial and industrial uses comprise 69 percent of electricity use and residential approximately 31 percent. Based on a 2017 state electricity usage of 292,000 gigawatt-hours and an estimated population of 38,650,000 (U.S. Census Bureau, 2016), the California per capita electricity usage is approximately 7,555 kWh per capita. For the City of St. Helena, the 2017 electricity usage per capita was higher at 9,966 kWh per capita.

Table 3.6-2: Annual Residential, Commercial, and Industrial Natural Gas Use shows approximate natural gas usage in the City of St. Helena for the residential, commercial, and industrial sectors in 2017. As in electricity usage, due to privacy reasons, commercial and industrial nature gas usage has been aggregated. In St. Helena, the residential sector consumes 51 percent of natural gas and the commercial and industrial sectors total 49 percent of natural gas use. Based on a 2017 state natural gas usage of 13 billion therms and a population of 38,650,000, the California per capita natural gas usage is approximately 335 therms per capita. For the City of St. Helena, the 2017 natural gas usage per capita was greater at approximately 435 therms per capita.

Table 3.6-1: Annual Residential, Commercial, and Industrial Electricity Use, St. Helena

Sector	*Usage (kWh)*	*Percent of Total*
Residential	18,059,292	31%
Commercial & Industrial	40,135,042	69%
TOTAL	**58,194,294**	**100%**

Sources: PG&E, 2017b; MCE, 2016, Dyett & Bhatia, 2018

Table 3.6-2: Annual Residential, Commercial, and Industrial Natural Gas Use, St. Helena

Sector	*Usage (therms)*	*Percent of Total*
Residential	1,300,249	51%
Commercial & Industrial	1,233,425	49&
TOTAL	**2,533,674**	**100%**

Sources: PG&E, 2017; Dyett & Bhatia, 2018

Greenhouse Gas Emissions

The Greenhouse Effect and Greenhouse Gases

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and regulate the earth's temperature. This effect, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor, followed by methane (CH_4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Key points about GHGs include the following:

- Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion;
- Nitrous oxide is also associated with agricultural operations such as fertilization of crops;
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock), composting and landfill operation;
- Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents, but their production has been mostly eliminated by international treaty;
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling; and
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO_2e).

California Contributions to Greenhouse Gas Emissions

In 2016, the United States produced 6,511 million metric tons of CO_2e ($MMTCO_2e$). The primary GHG emitted by human activities in the United States was CO_2, representing approximately 81.6 percent of total GHG emissions. The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.5 percent of the CO_2 emissions and 77 percent of overall GHG emissions (United States Environmental Protection Agency, 2018).

According to the 2016 GHG inventory compiled by the California Air Resources Board (CARB) California emitted 429 $MMTCO_2e$ of GHGs, including emissions resulting from out-of-state electrical generation. While transportation is the primary contributor to GHG emissions in California, other sources include industrial uses, electric power production from both in-state and out-of-state sources, agriculture and forestry, and commercial and residential activities (California Air Resources Board, 2018). Sources of GHG emissions in California and their respective contributions in 2016 are presented in Table 3.6-3: GHG Sources in California.

Table 3.6-3: GHG Sources in California (2016)

Source Category	*Annual GHG Emissions ($MMTCO_2e$)*	*Percent of Total*
Transportation	174.0	41%
Industrial uses	100.4	23%
Electricity generation (In State)	42.7	10%
Electricity generation (Imports)	26.3	6%
Agriculture and forestry	33.8	8%
Residential	28.3	7%
Commercial	23.0	5%
Not Specified	0.8	<1%
Total	**429.4**	**100.0**

Source: CARB, 2018

Local GHG Emissions

For the General Plan, an updated GHG emissions inventory was conducted for the City of St. Helena using best available data (see Appendix G for more detailed inventory methodology) and modeled for a baseline year of 2018. The inventory found that St. Helena's emissions totaled 76,012 $MTCO_2e$. As shown in Table 3.6-4: 2018 GHG Emissions Summary by Sector ($MTCO_2e$), the transportation sector was responsible for the largest source of emissions, generating 44,531 $MTCO_2e$, 59 percent of total emissions.[1] Electricity and natural gas use from the commercial/industrial sector was the second largest source of emissions, generating approximately 12,773 $MTCO_2e$, 17 percent of total emissions. Electricity and natural gas consumption within the residential sector was the third largest source of emissions, generating 9,890 $MTCO_2e$, 13 percent of total emissions.

[1] The substantial increase in transportation emissions between 2010 and 2018 can be attributed to a change in methodology in accounting for vehicle miles traveled (VMT). In 2010, it is assumed that transportation emissions from VMT were calculated only using trips within the boundaries of the City of St. Helena. Best practices for compiling a GHG inventory state that a shared accounting method should be used that includes VMT for trips within the City of St. Helena plus 50 percent of trips that begin or end in the city boundaries. A shared accounting method was used in the baseline inventory and therefore increased the transportation emissions of the City significantly. More information about the methodology for quantifying GHG emissions can be found in Appendix G.

Table 3.6-4: 2018 GHG Emissions Summary by Sector, St. Helena ($MTCO_2e$)

Sector	*Annual GHG Emissions (MTCO2e)*	*Percent of Total*
Residential	9,890	13.0%
Commercial/Industrial	12,773	16.8%
Transportation	44,531	58.6%
Solid Waste	3,734	4.9%
Water Transport, Distribution, and Treatment	138	0.2%
Wastewater	181	0.2%
Off-Road Equipment	4,631	6.1%
Public Lighting	37	>0.1%
Agriculture	97	0.1%
TOTAL	**76,012**	**100.0%**

Source: Dyett & Bhatia, 2017

Climate Change

Climate change refers to a change in the average global climate that may be measured by wind patterns, storms, precipitation, and temperature. The term climate change is often used interchangeably with the term global warming. Global warming refers to an average increase in the temperature of the atmosphere near the Earth's surface, which can contribute to changes in global climate patterns. However, rising temperatures are just one aspect of climate change.

The U.S. Environmental Protection Agency's (EPA's) indicators of climate change include (U.S. Environmental Protection Agency, 2016):

- **Greenhouse Gases.** The amount of GHGs emitted into the atmosphere through human activities, the concentrations of these gases in the atmosphere, and how emissions and concentrations have changed over time.
- **Weather and Climate.** Frequency of heat waves, increased drought conditions, increased average precipitation and shifting weather patterns, and the intensity of tropical storms.
- **Oceans.** Increased ocean heat affecting water temperature, sea level, and currents; changes in sea level; increased ocean acidity affecting marine organisms.
- **Snow and Ice.** Reduced Arctic sea ice, diminished glaciers, decreased time that lakes stay frozen, decreased snow cover and snowpack.
- **Health and Society.** Heat-related illnesses, increased length of growing season reflecting earlier spring warming and later fall/winter frosts, prolonged allergy seasons.
- **Society and Ecosystems.** Shifts in plant hardiness zones reflecting higher winter temperatures, changes in bird migration patterns as a result of temperature variability.

Potential Effects of Human Activity on Climate Change

Among scientists, global climate change is now a widely accepted phenomenon. Scientific societies and organizations worldwide have endorsed the Intergovernmental Panel on Climate Change (IPCC) position of January 2001, which states: "An increasing body of observations gives a collective picture of a warming world and other changes in the climate system. There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities." Since 1976, every year has been warmer than the 20th-century average temperature. In 2015, the average temperature across global land and ocean surfaces was 1.62°F (0.90°C) above the twentieth-century average (National Oceanic and Atmospheric Administration (NOAA), 2017). To date, no scientific body of national or international standing has maintained a dissenting opinion; the last was the American Association of Petroleum Geologists, which in 2007 updated its 1999 statement rejecting the likelihood of human influence on recent climate with its current non-committal position (American Association of Petroleum Geologists (AAPG), 2007).

Some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, higher O_3 days, larger forest fires, and more drought years. Several recent studies have attempted to explore the possible negative consequences that climate change, if left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system and the interplay of the various internal and external factors that affect climate change remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national levels to evaluate climatic impacts, but far less information is available on regional and local impacts.

REGULATORY SETTING

Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, and state levels. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.

Federal Regulations

Energy Policy and Conservation Act

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the EPA and National Highway Traffic Safety Administration (NHTSA) are responsible for establishing additional vehicle standards. In 2012, new Corporate Average Fuel Economy (CAFE) standards were approved to increase the fuel economy to 54.5 miles per gallon average for cars and light trucks by Model Year 2025 (EPA, 2012). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles;

- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups;
- Incentives for natural gas vehicles; and
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standards test procedures.

Energy Star Program

Energy Star is a joint program of the EPA and the U.S. Department of Energy (DOE). The program establishes criteria for energy efficiency for household products and labels energy efficient products with the Energy Star seal. For example, homes can earn the Energy Star certification if they are verified to meet the EPA's guidelines for energy efficiency. To earn the Energy Star certification in California, site-built or modular homes must meet energy efficiency the performance target as determined by energy modeling through a CEC-approved software program, construct the home using the preferred set of efficiency measures, and verify that the home meets every item on the National Rater Checklist through a Rater. Energy Star certified homes typically feature more efficient walls, windows, air ducts, HVAC system, and lighting and appliances that allow homeowners to operate their homes using less power and resources.

Massachusetts vs. EPA

On April 2, 2007, in Massachusetts v. EPA, the U.S. Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act (CAA). On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) set increased CAFE standards for motor vehicles and established other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (EISA Section 202);
- Appliance and Lighting Efficiency Standards (EISA Sections 301–325); and

- Building Energy Efficiency (EISA Sections 411–441).

This federal legislation requires ever-increasing levels of renewable fuels to replace petroleum. The EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation's renewable fuels sector. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

Carbon Pollution Standards and Clean Power Plan

On August 3, 2015, the EPA finalized the Carbon Pollution Standards, which established national limits on the amount of carbon pollution that new, modified, and reconstructed power plants would be allowed to emit. On the same date, the EPA also finalized the Clean Power Plan, setting national limits on carbon pollution from existing power plants.

State Regulations

Building Energy Efficiency Standards (Title 24) and CALGreen

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 California Code of Regulations [CCR], Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption.

In 2007, Governor Schwarzenegger directed the California Building Standards Commission (CBSC) to work with State agencies on the adoption of green building standards for residential, commercial, and public building construction for the 2010 code adoption process. A voluntary

version of the California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11 in 2009. The 2010 version of CalGreen took effect January 1, 2011 and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial and low-rise residential buildings, state-owned buildings, schools, and hospitals.

The most recent CALGreen code was adopted in 2016 and became effective in 2017. CALGreen contains voluntary Tier 1 and Tier 2 levels, which are designed to exceed energy efficiency and other standards by 15 percent or 30 percent, respectively.

The California Building Code (CBC) has been amended and adopted as Title 15 of the St. Helena Municipal Code, which regulates all building and construction projects within the city.

Pavley Fuel Economy Standards (Assembly Bill 1493)

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 was enacted in 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the State board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004.

Before these regulations could go into effect, the EPA had to grant California a waiver under the federal CAA, which ordinarily preempts State regulation of motor vehicle emission standards. The EPA Administrator granted the waiver on June 30, 2009. On March 29, 2010, the CARB Executive Officer approved revisions to the motor vehicle GHG standards to harmonize the State program with the national program for 2012–2016 model years (see *Energy Policy and Conservation Act* above). The revised regulations became effective on April 1, 2010.

Advanced Clean Cars Program

In 2012, CARB approved the Advanced Clean Cars (ACC) program, developed in coordination with the EPA. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations that reduce GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of battery electric and fuel cell electric vehicles, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.

Executive Order S-3-05

In 2005, Executive Order S-3-05 established California's GHG emissions reduction targets: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The California Environmental Protection Agency (CalEPA) Secretary is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. The California Climate Action Team (CAT) is responsible for implementing global warming emissions reduction programs. Representatives from several State agencies comprise the CAT.

Assembly Bill 32

In furtherance of the goals established in Executive Order S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006, signed by Governor Schwarzenegger on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report (June 21, 2007) listing early action GHG emission reduction measures. The early actions include three specific GHG control rules that meet the narrow legal definition of "discrete early action GHG reduction measures":

- A low-carbon fuel standard to reduce the "carbon intensity" of California fuels;
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants; and
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32, which were also considered "discrete early action GHG reduction measures:"

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- Reduction of PFCs from the semiconductor industry;
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);
- Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and
- Restriction on the use of SF_6 from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 $MMTCO_2e$. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94 percent of GHG

emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO_2 in excess of specified thresholds.

On December 11, 2008, CARB approved the Climate Change Proposed Scoping Plan: A Framework for Change to achieve the goals of AB 32. The scoping plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The scoping plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

The key elements of the scoping plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the LCFS; and
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of California's long-term commitment to AB 32 implementation.

Senate Bill 32 (Executive Order B-30-15) and 2017 CARB Scoping Plan

Executive Order B-30-15 issued in 2015 established an interim target to reduce GHG emissions to 40 percent below 1990 levels by 2030. In 2016, the Legislature passed Senate Bill (SB) 32, which codified the 2030 GHG emissions reduction target. Pursuant to SB 32, CARB updated the prior AB 32 Scoping Plan to address implementation of GHG reduction strategies to meet the 2030 reduction target. The final plan was approved in December 2017. The 2017 plan continues the discussion from the original scoping plan and 2014 update of identifying scientifically-backed policies within six of the state's economic sectors to reduce GHGs. The updated Scoping Plan includes various elements, including doubling energy efficiency savings, increasing the low carbon fuel standard from 10 to 18 percent, adding 4.2 million zero-emission vehicles on the road, implementing the Sustainable Freight Strategy, implementing a post-2020 Cap-and-Trade Program, creating walkable communities with expanded mass transit and other alternatives to traveling by car, and developing an Integrated Natural and Working Lands Action Plan to protect land-based carbon sinks.

CARB's 2017 Climate Change Scoping Plan recommends that local governments target 6 $MTCO_2e$ per capita per year in 2030 and 2 $MTCO_2e$ per capita per year in 2050. Since the statewide per capita targets are based on the statewide GHG emissions inventory that includes all emissions sectors in the State, the Scoping Plan states that it is appropriate for local jurisdictions to derive evidence-based local per capita, or another metric that the local jurisdiction deems appropriate (e.g., mass emissions, per service population), goals based on local emissions sectors and population projections that are consistent with the framework used to develop the statewide per capita targets.

Senate Bill 1368

In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

Issued on January 18, 2007, Executive Order S-1-07 sets a declining LCFS for GHG emissions measured in CO_2e gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles.

Senate Bill 97

In August 2007, the legislature enacted SB 97, which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. OPR was to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency was directed to adopt the guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines.

The Natural Resources Agency adopted the CEQA Guidelines amendments on December 30, 2009 and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the Secretary of State. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project" (CEQA Section 15064.4(a)).
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the GHG emissions resulting from a particular project (CEQA Section 15064.4(a)).
- Requiring a lead agency to consider the following factors when assessing the significance of impacts from GHG emissions on the environment (CEQA Section 15064.4(b)):
  - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
  - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
  - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including, among others (CEQA Section 15126.4(c)):
  - Measures in an existing plan or program for reduction of emissions that are required as part of the lead agency's decision;
  - Reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required; and
  - In the case of the adoption of a general plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

The amended CEQA guidelines also establish two new guidance questions in the Environmental Checklist regarding GHG emissions (CEQA Guidelines Appendix G):

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

Senate Bill 375

In August 2008, the legislature passed and on September 30, 2008, Governor Schwarzenegger signed SB 375, which addresses GHG emissions associated with the transportation sector through

regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-duty truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see AB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations (MPOs) will be responsible for preparing a Sustainable Communities Strategy (SCS) within their regional transportation plans (RTPs).

The goal of an SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, an MPO must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or alternative planning strategy. On September 23, 2010, CARB adopted the SB 375 targets for regional MPOs. Achieving these goals through adoption of an SCS will be the responsibility of the MPOs.

The Metropolitan Transportation Commission (MTC) is the MPO for the nine counties that comprise the San Francisco Bay Area, which includes the City of St. Helena. MTC adopted an SCS as part of their regional transportation plan (RTP) in 2013 known as Plan Bay Area. The plan targets reductions of 10 percent and 16 percent in per capita GHG emissions by 2020 and 2035, respectively. On July 26, 2017, the strategic update to this plan, known as Plan Bay Area 2040, was adopted by the Association of Bay Area Governments (ABAG) and the MTC. See "Plan Bay Area" under the Local Regulations section for more information.

Executive Order S-14-08

On November 17, 2008, Governor Schwarzenegger issued Executive Order S-14-08. This executive order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. Furthermore, the order directs State agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency, through collaboration with the CEC and California Department of Fish and Wildlife (CDFW), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and the CDFW creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Executive Order S-21-09

On September 15, 2009, Governor Schwarzenegger issued Executive Order S-21-09. This Executive Order directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the Renewable Portfolio Standard (RPS) program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice

providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted regulations to implement a "Renewable Electricity Standard," which would achieve the goal of the executive order (contribution of renewable energy to meet the state's electrical needs) with the following intermediate and final goals: 20 percent for 2012 to 2014, 24 percent for 2015 to 2017, 28 percent for 2018 to 2019, and 33 percent for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

SB X1-2

On April 12, 2011, Governor Jerry Brown signed SB X1-2 in the first extraordinary session, which would expand the RPS by establishing a goal that renewable energy shall constitute 20 percent of the total electricity sold to retail customers in California per year, by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic (PV), wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered previously, SB X1-2 adds local publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20 percent by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

Senate Bill 350

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50 percent, and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of the CPUC and CEC.

Assembly Bill 341

In 2011, AB 341 set the goal of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (CalRecycle) to take a statewide approach to decreasing California's reliance on landfills. This goal was an update to the former goal of 50 percent waste diversion set by AB 939. Reductions in solid waste disposal has the potential to reduce GHG emissions from landfills.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is the association of air pollution control officers representing all 35 air quality agencies throughout California. CAPCOA is not a regulatory body but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues.

Local Regulations

Plan Bay Area

Plan Bay Area is the Sustainable Communities Strategy adopted by the Metropolitan Transportation Committee (MTC) and Association of Bay Area Governments (ABAG) in 2013. This was the Bay Area's first Sustainable Communities Strategy adopted under SB 375. The Plan assists jurisdictions seeking to implement the Plan at the local level by providing funding for PDA planning and transportation projects. Plan Bay Area also provides jurisdictions with the option of increasing the efficiency of the development process for projects consistent with the plan and other criteria included in SB 375. An updated Plan Bay Area 2040 was adopted in 2017. As a limited and focused update, Plan Bay Area 2040 builds upon the growth pattern and strategies developed in the original Plan Bay Area with updated planning assumptions that incorporate key economic, demographic, and financial trends since 2013.

Plan Bay Area is one element of a broader statewide effort to reduce GHG emissions (as detailed in the discussion above). Plan Bay Area focuses on where the region is expected to grow and what transportation investments will support that growth.

Plan Bay Area structures an infrastructure investment plan in a systematic way to support the region's long-term land use strategy, relying on a performance assessment of scenarios and individual projects. The plan makes investments in the region's transportation network that support job growth and new homes in existing communities by focusing the lion's share of investment on maintaining and boosting the efficiency of the existing transit and road system. Plan Bay Area also identifies strategic investments that provide support for focused growth in Priority Development Areas (of which St Helena has none, due to its small size and limited public transportation infrastructure), including the new One Bay Area Grant program.

Plan Bay Area transportation revenue forecasts total $292 billion over the 28-year period. Over two-thirds (68 percent) of these funds are from regional and local sources, primarily dedicated sales tax programs and bridge tolls. Making up the remainder of the pie are state and federal revenues (mainly derived from fuel taxes). Of the total revenues, $60 billion are "discretionary," or available for assignment to projects and programs through Plan Bay Area. The plan invests those discretionary funds via six key investment strategies including maintaining the current transportation system; boosting the efficiency of the existing transportation system; supporting focused growth; increasing climate protection efforts; and investing in the next generation of public transit.

Bay Area Air Quality Management District (BAAQMD)

The Bay Area Air Quality Management District (BAAQMD) has local jurisdiction over air quality in the San Francisco Bay Area, including projects in the Planning Area. BAAQMD has adopted

advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's GHG emissions, including long range plans (e.g., general plans, specific plans), which are outlined in its California Environmental Quality Act: Air Quality Guidelines (CEQA Guidelines). The CEQA Guidelines also outline methods for quantifying GHG emissions, as well as potential mitigation measures.

Napa Countywide Community Climate Action Framework

The community review draft of the Napa Countywide Community Climate Action Framework was released in December 2009. Preparation of this document was supported by BAAQMD, Napa County Transportation and Planning Agency (NCTPA), Napa Valley Community Foundation, Napa County, and the cities of American Canyon, Calistoga, Napa, St. Helena, and Yountville. The Community Climate Action Framework provides a consensus-based context for further, more detailed planning efforts. Building upon the emissions inventories developed for all six Napa County jurisdictions (including St. Helena), the framework outlines a package of 53 actions that, when translated into locally specific programs and projects countywide, will help meet climate protection targets. This policy framework is meant to be followed by locally appropriate implementation plans, designed for each jurisdiction, focusing on specific programs and projects. The Climate Action Framework document has not yet been adopted.

Napa County Climate Action Plan

Napa County began an effort to adopt a Climate Action Plan (CAP) that pertains to unincorporated Napa County, including the study areas, upon direction from the 2008 General Plan Update. A proposed CAP was recommended for adoption by the Planning Commission in early 2012 and later considered by the Board of Supervisors, who sent the document back for further review. The Board has several suggestions, including revising the CAP to better address transportation-related emissions. In July 2015, a contract was awarded to Ascent Environmental to assist Napa County staff in completing a CAP which addresses the concerns with the previous effort, is legally defensible, and meets all applicable State requirements. Ascent Environmental completed an updated GHG inventory for unincorporated Napa County in 2016 and a Draft CAP in June 2017.

City of St. Helena Greenhouse Gas Emission Reduction Action Plan

The City of St Helena is implementing the International Council for Local Environmental Initiatives (ICLEI) program to reduce the GHG emissions from City-controlled sources (Tellus, 2009). The City of St Helena Greenhouse Gas Emission Reduction Action Plan provides five measure-specific plans to reduce City-controlled GHG emissions by more than 20 percent. These plans consist of numerous measures to reduce GHG emissions, reduce energy costs, address equipment problems, and reduce the volatility of the City's annual energy costs. This plan does not address community-wide emissions reductions.

St. Helena Building Code

Title 15 of the City of St. Helena Municipal Code adopts the 2016 California Building Standards Code, which includes energy efficiency measures as described under the State Regulations section above. Chapter 15.53 California Green Buildings Standards Code adopted the 2016 Edition of the California Green Building Standards Code, known as the California Code of Regulations, Title 24,

Part 11, as amended in Section 15.53.020 for provisions specific to Northern California, such as indoor water use and fireplaces.

Impact Analysis

SIGNIFICANCE CRITERIA

The State of California has developed guidelines to address the significance of climate change impacts based on Appendix G of the CEQA Guidelines, which provides guidance that implementation of the Proposed Plan would have a significant environmental impact if it would:

Criterion 1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

Criterion 2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The CEQA Guidelines Appendix G does not contain specific thresholds that identify when a significant energy-use impact would occur. CEQA Guidelines Appendix F, Energy Conservation, provides direction as to the type of information, analysis, and mitigation that should be considered in evaluating a proposed project, but does not provide specific energy conservation thresholds.

Other guidance on the content and standards for EIR energy evaluations has come from case law. On August 27, 2009, the California Court of Appeal, Third Appellate District, issued the first ever CEQA decision on the requirements of an energy conservation impacts analysis in the case of Tracy First v. City of Tracy 177 Cal.App. 4th 912 (2009). The court ruled it was appropriate for the EIR to rely upon the CBC Energy Efficiency Standards, which are part of the State's Title 24 Building Code, to determine that the project's energy impacts would be less than significant. The court also held that CEQA does not require that an EIR discuss "every possible energy impact or conservation measure" listed in Appendix F of the CEQA Guidelines.

In accordance with Appendix F of the CEQA Guidelines and case law, and for the purposes of this EIR, the Proposed Plan would result in a significant impact on energy conservation if it would:

Criterion 3: Cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance; or

Criterion 4: Conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2035, or any other applicable energy conservation regulations.

METHODOLOGY AND ASSUMPTIONS

Greenhouse Gas Inventory

GHG emissions associated with the Proposed Plan would result from operation of future land uses that would be developed in the Planning Area and from traffic volumes generated by these new developments. These emissions would not occur at once but over the course of the Proposed Plan's

buildout period. Construction activities would also generate GHG emissions within the Planning Area and on roadways resulting from construction-related traffic. This analysis provides a program-level overview of construction and operational emissions that could occur with buildout of the Proposed Plan. Subsequent project-level environmental review, including quantification of construction GHG emissions, would be conducted during the processing of individual applications for subsequent future projects under the Proposed Plan.

Operational GHG Emissions

Operation of the land uses introduced by the Proposed Plan would generate long-term emissions from residential energy consumption, commercial/industrial energy consumption, on-road and off-road mobile sources, the treatment and distribution of water and wastewater, decomposition of solid waste, and energy from public lighting. GHG emissions information for each sector was modeled from the best available data. For several sectors, including residential, commercial/industrial, agriculture, water, and wastewater, the 2010 GHG inventory compiled by ICLEI was used as a starting point and updated with newer information, when available, such as population, housing units, emissions factors, energy mix, and water consumption. Transportation emissions were estimated using vehicles miles traveled information from Fehr & Peers provided in August 2018 and emissions factors from California Air Resources Board (CARB). Emissions from and waste were estimated using CalRecycle's Waster Characterization Study. The methodology and assumptions made for each sector of the GHG inventory is outlined in Appendix G.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Since electricity, natural gas, off-road vehicles, water, wastewater, and off-road vehicles emissions were not available for the specific portions of unincorporated Napa County that make up the study areas, the GHG inventory presented only includes emissions for the City of St. Helena. Additionally, the emissions from unincorporated Napa County would be accounted for under the emissions inventory for Napa County; therefore, only including the City of St. Helena avoids double-counting. As the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. While implementation of the Proposed Plan would not result in direct impacts related to energy, GHGs, and climate change in the study areas, development as a result of the Proposed Plan may indirectly affect GHG emissions from VMT in the surrounding study areas. Any increase or decrease in emissions outside of the city's jurisdiction would be reflected in Napa County's GHG inventories.

Business as Usual Forecast

The Business as Usual (BAU) forecast estimates emissions through the year 2040, based on the Proposed Plan land use and circulation system. However, it does not include the effects of the RPS or the 2016 Title 24 Building Energy Efficiency Standards. The Pavley regulations and the ACC program are already accounted for in the transportation emission factors output by the EMFAC2014 model, so these are automatically included in the BAU forecast. Conversely, the Low Carbon Fuel Standard (LCFS) is not included in the EMFAC2014 model because LCFS GHG reductions come from upstream emissions, rather than tailpipe emissions, as discussed in the

EMFAC2014 Technical Documentation (California Air Resources Board (CARB), 2015). Additionally, the BAU forecast does not include the effects of policies in the Proposed Plan discussed in the Modified Baseline: GHG Reductions from Proposed Plan Policies and Actions section below.

The forecast predicts all direct GHG emissions[2] from sources within the City of St. Helena. Indirect emissions associated with the consumption of energy that is generated outside the borders of the city are also included. Other indirect or embodied emissions are not covered in the forecast, in accordance with ICLEI standards. The forecast tallies emissions from 10 sectors:

- Residential;
- Commercial;
- Industrial;
- Transportation;[3]
- Solid waste;
- Water;
- Wastewater;
- Off-Road Equipment;
- Public Lighting; and
- Agriculture.

The emissions projected in the forecast use the activity data (or usage) from the baseline emissions inventory as an initial value. The predicted growth in each sector is projected to scale with various St. Helena characteristics, such as population growth and increase in commercial building square footage. The BAU forecast is discussed under Impact 3.5-1 as a baseline for which to compare the impacts of State and regional actions, as well as additional policies in the Proposed Plan, on the trajectory of GHG emissions in St. Helena.

Construction GHG Emissions

Potential development under the Proposed Plan would generate construction-related GHG emissions from mobile and stationary construction equipment exhaust and employee and haul truck vehicle exhaust. With an anticipated buildout year of 2040, development of the various land uses associated with the Proposed Plan would occur over an extended period of time and would depend on factors such as local economic conditions, market demand, and other financing considerations. As such, the specific size, location, and construction techniques and scheduling that would be utilized for each individual development project occurring within the City of St.

[2] GHGs considered in the report are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The emissions have been converted to carbon dioxide equivalent (CO_2e), which converts the three other GHGs into the equivalent mass of carbon dioxide.

[3] For transportation trips that originate or end in the City of St. Helena, emissions for half of the entire trip are included, and not just for the miles traveled within the city; however, trips that just pass through the City of St. Helena are excluded, as their emissions would be reflected at their trip ends.

Helena under the Proposed Plan is not currently known. Without specific project-level details it is not possible to develop a refined construction inventory,[4] and the determination of construction emission impacts associated with GHGs for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Thus, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the Proposed Plan is conducted qualitatively in this EIR and assessed against applicable BAAQMD criteria.

Emissions Target

A number of lead agencies throughout the state have drafted and/or adopted various threshold approaches and guidelines for analyzing 2020 operational GHG emissions in CEQA documents consistent with AB 32 reduction requirements. These different thresholds include compliance with a qualified GHG reduction strategy (i.e., a Climate Action Plan), performance-based reductions,[5] numeric bright-line thresholds, and efficiency-based thresholds. The recent California Supreme Court's Newhall Ranch decision confirmed that there are multiple potential pathways for evaluating GHG emissions consistent with CEQA, depending on the circumstances of a given project.[6] While the decision did not foreclose other methodologies that may be used by lead agencies, it affirmed that "thresholds only define the level at which an environmental effect 'normally' is considered significant; they do not relieve the lead agency of its duty to determine the significance of an impact independently." Additionally, the decision also identified the need to analyze both near-term and post-2020 emissions, as applicable, stating that an "EIR taking a goal-consistency approach to CEQA significance may in the near future need to consider the project's effects on meeting longer term emissions reduction targets."

As the Proposed Plan is located within the San Francisco Bay Area Air Basin (SFBAAB), which is under jurisdiction of BAAQMD, GHG emissions are evaluated using guidance and thresholds outlined in BAAQMD's CEQA Guidelines. However, it should be noted that these thresholds currently only account for consistency with GHG reduction targets for 2020 established in AB 32, while the future buildout year for the Proposed Plan is in 2040. As such, GHG emissions will be evaluated by modifying the existing BAAQMD GHG threshold for 2020 (per AB 32) to the 2040 period, taking into account the GHG reduction targets in SB 32 for 2030 and EO S-3-05 for 2050, as discussed below. Additionally, it should be noted that the BAAQMD CEQA Guidelines are voluntary. They are utilized within this analysis as the best available established threshold and are widely used throughout the Bay Area. An update to these guidelines is in process that addresses changes to the data and assumptions underlying the analytical methodologies, thresholds, and mitigation strategies; the increased focus and prominence of the risks to public health and air

[4] Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

[5] Performance-based reductions include the "percent below Business as Usual" threshold approach, which has been used widely in the past. This approach was the subject of the Newhall Ranch case and presently is subject to uncertainty until the issues raised in the Supreme Court ruling are resolved.

[6] *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, known as the Newhall Ranch decision

quality posed by global climate change; and recent substantial court decisions related to CEQA litigation.

Threshold Criteria

BAAQMD's guidelines establish two potential analysis criteria for the operational GHG emissions of plan-level projects (e.g., general plans, community plans, specific plans, regional plans, congestion management plans, etc.) relative to 2020:

- Compliance with a Qualified GHG Reduction Strategy, with a goal consistent with AB 32; or
- Compliance with a GHG efficiency threshold of either 6.6 metric tons (MT) CO_2e per service population (SP) (employees + population) for general plans, or a GHG efficiency threshold of 4.6 MT CO_2e per SP for all other plans (e.g., specific plan, congestion management plans, etc.).

BAAQMD thresholds are based on the AB 32 GHG reduction goals and a "gap analysis" that attributes an appropriate share of GHG emissions reductions to new land use development projects in BAAQMD's jurisdiction. The efficiency threshold was calculated by dividing the AB 32 GHG reduction target for GHG emissions in California by the estimated 2020 population and employment level. Thus, BAAQMD thresholds are tied directly to AB 32 and statewide emissions reduction goals for 2020. However, given that the Proposed Plan's buildout year would occur beyond 2020, threshold criteria that are tied to the State's post-2020 reduction goals should be used to evaluate the Proposed Plan's GHG emissions. As discussed previously, long-term goals for 2030 have been statutorily established in SB 32 and long-term goals for 2050 have been articulated in EO S-3-05.[7] SB 32 extends the 2020 statewide target and requires a 40 percent reduction below 1990 levels by 2030. The 2030 Scoping Plan includes per capita reduction targets consistent with SB 32, which are 6 metric tons CO2e per capita by 2030 and 2 metric tons CO_2e per capita by 2050. Although not legislatively adopted, EO S-3-05 outlines a long-range target of 80 percent below 1990 emissions levels by 2050.

The Association of Environmental Professionals (AEP) Climate Change Committee recommended in a 2016 white paper that CEQA analyses for multiple-phase projects with post-2020 development, such as the Proposed Plan, not only "consider consistency with the 2020/AB 32 based framework, but also analyze the consequences of post-2020 GHG emissions in terms of their impacts on the reduction trajectory from 2020 toward 2050." AEP further recommends that the "significance determination…should be based on consistency with "substantial progress" along a post-2020 trajectory." The 2016 AEP white paper is advisory only and is not binding guidance or an adopted set of CEQA thresholds. However, the CEQA Guidelines do authorize a lead agency to consider thresholds of significance recommended by experts such as members of the AEP Climate Change Committee, which consists of leaders of climate action planning practices from consulting firms and agencies that have led many of the local GHG reduction planning efforts across California.

[7] Executive orders are binding only on State agencies.

While BAAQMD's current efficiency threshold only accounts for consistency with AB 32's established GHG reduction targets for 2020, efficiency-based thresholds can also be derived to assess a project's consistency with the State's post-2020 reduction targets. Efficiency-based thresholds consist of identifying a GHG efficiency level needed for new development that would support statewide reduction planning for future milestones. Projects that attain the efficiency target, with or without mitigation, would result in less-than-significant GHG emissions. While the Newhall Ranch decision did not specifically recommend the efficiency-based approach, the ruling did note that numerical threshold approaches may be appropriate for determining significance of GHG emissions and to emphasize the consideration of GHG efficiency. Efficiency-based thresholds are typically calculated by dividing GHG emissions by service population, which is the sum of jobs and residents within the same geography.

For the purpose of this analysis, GHG efficiency and substantial progress thresholds based on the emissions reduction targets under AB 32, SB 32, and EO S-3-05 that are applicable to the geographical area under the jurisdiction of BAAQMD, which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, and portions of Solano and Sonoma counties, are first established. To establish these metrics, the 1990 GHG emissions for BAAQMD's geographical jurisdiction were obtained from BAAQMD's 2011 GHG emissions inventory and used to calculate the GHG emission targets based on the percent reduction targets for future statewide milestone years (i.e., 1990 emission levels by 2020; 40 percent below 1990 emission levels by 2030; and 80 percent below 1990 emission by 2050). Population and employment data are then used to calculate the efficiency metrics for those years. For projects that have buildout years that fall outside of milestone years 2020, 2030, and 2050, GHG efficiency thresholds can be estimated by interpolating the GHG emission targets between the appropriate milestone years and using service population obtained for those years from ABAG. As such, for the Proposed Plan, the GHG emission target for 2040 is calculated by assuming a linear reduction in emissions between 40 percent in 2030 and 80 percent in 2050. This results in a goal of reducing GHG emissions 60 percent below 1990 emission levels in 2040. The GHG efficiency thresholds calculated for milestone years 2020, 2030, and 2050 for BAAQMD's jurisdictional area, along with the corresponding efficiency thresholds for the Proposed Plan's future 2040 buildout year are shown in Table 3.6-5.

Table 3.6-5. Operational GHG Thresholds/Substantial Progress Efficiency Metrics for BAAQMD

Year	*GHG Emissions (Metric Tons CO_2e)*	*Total Service Population*	*Threshold/Metric (MT CO_2e per service Population)*	*Threshold Basis*
2020	67,100,000	10,073,327	6.7	GHG emissions reduced to 1990 levels by 2020 per AB 32
2030	40,260,000	10,827,438	3.7	GHG emissions reduced to 40 percent below 1990 levels per SB 32
2040	26,840,000	11,745,220	2.3	GHG emissions reduced to 60 percent below 1990 levels (interpolated between 2030 and 2050)
2050	13,420,000	12,663,002	1.1	GHG emissions reduced to 80 percent below 1990 levels per Executive Order S-3-05

Note:

The emissions from BAAQMD's 2011 GHG emissions inventory for 1990 is used to represent the GHG emissions in 2020, as the emission reduction target under AB 32 requires GHG emissions to be reduced to 1990 levels by 2020. The GHG emissions for all subsequent years in this table are calculated from the 1990 emission level value and factoring in the Statewide milestone reduction targets. The total service population for each year analyzed in the table is calculated by summing the residential and employment population data obtained from ABAG's Projection 2013. The GHG efficiency threshold is calculated by dividing the total GHG emissions by the total service population.

Sources: Bay Area Air Quality Management District 2011; California Air Resources Board 2012b; Association of Bay Area Governments 2013; Dyett & Bhatia, 2018

To summarize, while the CARB scoping plan sets goals of reducing GHG emissions throughout the state to 4.0 MTCO2e per capita by 2040 and 2.0 MTCO2e per capita by 2050, in alignment with emissions reduction targets under AB 32, SB 32, and EO S-3-05, BAAQMD's CEQA Guidelines allow for an alternative efficiency threshold that is more appropriate for land use plans versus individual development projects. The efficiency threshold takes into account the impact that residents and businesses have on emissions, as a result of land use, transportation, and other sectors, by setting a per service population threshold instead of per capita, which only includes city residents. However, at the time of this EIR, the efficiency threshold is only established for the year 2020. Substantial progress thresholds are calculated in Table 3.6-5, which extrapolates the 2020 threshold based on emissions and service population projections, consistent with the State's 2030 and 2050 GHG reduction goals. While these substantial progress thresholds are estimates as to how the BAAQMD region can meet the State's goals and may change over time, they provide the best current estimate of an appropriate GHG threshold for a land use plan under CEQA, and is likely to provide a conservative estimate for the overall GHG reductions needed. Therefore, for the purposes of the Proposed Plan, when assessing the impact of GHG emissions at buildout, GHG emissions will be compared to the efficiency threshold of 2.3 MTCO2e per service population.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Policies and implementing actions within the Proposed Plan that address reductions in GHG emissions include:

Land Use and Growth Management Element

- ***LU1.1*** Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building and stormwater management and paying its share of development impact fees, while minimizing impacts on sewer, water, energy, and natural resources.
- ***LU1.2*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water, and storm drainage, will only be extended to development within the Urban Limit Line.

  The Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies or when logical to include developed lands receiving urban services from the City. Expansion outside the Urban Limit Line should first be considered in Urban Reserve Areas. Expansion into other areas outside the Urban Limit Line should be considered only when the proposed land use is found to further the goals and long-term objectives of the City and does not result in adverse impacts to adjacent uses in either the urban or rural areas.

- ***LU1.4*** In order to minimize and postpone the need for expansion of the Urban Limit Line, encourage infill development within currently developed areas.
- ***LU1.6*** Support the redevelopment of vacant and underutilized sites within the downtown area with mixed-use development opportunities. Encouraging infill development with a mix of uses will support a pedestrian-oriented, vibrant retail and commercial district that is centrally located and easily accessible to residents and neighborhoods.
- ***LU1.A*** Continue to allow the construction of second units – also known as accessory dwelling units – and consider allowing the division of single-family homes into two or more units under appropriate circumstances, in order to increase residential density and housing availability without requiring an extension of the Urban Limit Line.
- ***LU2.5*** Encourage the development of higher density housing in areas near the center of the city and close to recreation and services, such as transit, retail, and public facilities.
- ***LU2.7*** Ensure safe, walkable, and bikeable residential neighborhoods and vibrant, livable streets.
- ***LU2.8*** Ensure walkable and accessible neighborhoods through mixed-use development.
- ***LU3.2*** Enhance the pedestrian-oriented character of commercial areas and provide for convenient pedestrian and bicycle connections to encourage walking and reduce vehicle trips within the commercial area.

- ***LU3.3*** Support the redevelopment of auto-oriented commercial areas into pedestrian-friendly commercial uses.
- ***LU3.A*** Identify sites in the Central Business and Service Commercial districts for mixed-use development that are close to services and facilitate walking, bicycling, and transit use.

Economic Sustainability Element

- ***ES2.4*** Encourage green transportation options to circulate people throughout the community. Promote sustainable modes of travel and reduce the number and length of vehicle trips generated by visitors to the community.

Public Facilities and Services Element

- ***PF1.2*** Adopt and implement equitable water conservation measures for both residential and non-residential users so that the City can supply water within the safe yield of its water system.
- ***PF1.6*** Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock through the City existing Ordinances and Water Conservation Plans.
- ***PF1.A*** Continue to implement the City's water conservation ordinances and programs that act to reduce per capita water consumption. In addition, consider incentives to property owners to install rainwater collection barrels and continue to require water efficient irrigation systems and drought tolerant landscaping.
- ***PF1.J*** Develop and adopt regulations to ensure that total potable water usage is not greater than 1,950 acre-feet per year unless the project includes housing affordable to lower income households and a determination is made pursuant to Government Code 65589.7 that a "sufficient water supply" is available to serve that project and none of the exceptions set forth in 66589.7 (c) apply; or, new sources of water are made available to the City. Residential projects that contain affordable housing shall receive priority allocation of water.
- ***PF1.H*** Ensure that water rates are designed to promote conservation, as well as to ensure that needed capital improvements are made in a timely manner.
- ***PF1.K*** Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock.
- ***PF1.L*** Require that all new residential housing projects incorporate "best practices" for minimizing water usage.
- ***PF1.M*** Limit any future non-residential development to projects that incorporate "best practices" for water conservation.
- ***PF1.N*** Institute an ongoing process of mandatory audits of all existing non-residential water users to promote adoption of "best practices" for water conservation.

Circulation Element

- ***CR1.6*** Continue to support NVTA in the provision of convenient transit, including regional and local service. Support more frequent and reliable transit service between

communities to reduce the number of people traveling to or from St. Helena to work by private vehicle. Promote and encourage use of the St. Helena Vine Shuttle.

- ***CR1.7*** Explore the use of the rail corridor to reduce traffic, including working with the new owners of the Wine Train to consider the possibility of developing hospitality and other tourist-oriented uses that are primarily accessed by passengers riding on the Wine Train Corridor.

- ***CR1.8*** Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies:
  - Complete the City's bicycle and pedestrian network, which will increase transportation choices in the city and reduce the demand for vehicle travel;
  - Maximize the overall efficiency of the transportation system, including managing the transportation network through a citywide transportation system management program;
  - Implement "smart growth" and sustainable planning principles as defined in the Land Use and Growth Management Element;
  - Encourage jobs/housing match, as defined in the Housing Element; and
  - Encourage/provide incentives for employee car pools.

- ***CR1.9*** Promote a walking and bicycling environment that is comfortable and convenient. Ensure that all St. Helena streets have no more than a single through-automobile lane in each direction, plus a single left-hand turning lane where appropriate, even if this requirement increases vehicle travel times. Allow exceptions if an extra lane would reduce the possibility of collisions.
- ***CR1.E*** Support efforts to secure additional funding for regional transit service to St. Helena for residents, workers and visitors as a viable alternative to travel by private automobile. Focus on improving the bus service for use by commuters.
- ***CR1.G*** Study the potential for integrating Wine Train activities with car-free tourism strategies to provide an alternative for tourists to visit St. Helena without a car.
- ***CR2.2*** Promote walking and bicycling as safe and convenient modes of transportation.
- ***CR2.3*** Ensure secure, accessible, and convenient bicycle parking facilities throughout St. Helena, including downtown, commercial areas, schools, and parks.
- ***CR2.4*** Preserve and enhance pedestrian connectivity and safety throughout St. Helena.
- ***CR2.6*** Encourage walking and bicycling trips to St. Helena schools.
- ***CR2.A*** Implement a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena's existing partnership with the Napa Valley Transportation Authority (NVTA) to ensure that the City's master plan is consistent with countywide transportation planning efforts.

- ***CR2.B*** Develop guidelines for the design, construction and maintenance of bicycle and pedestrian paths in St. Helena. Coordinate the guidelines with Napa County or regional trail connections.
- ***CR2.C*** Require any new development and modifications to existing projects to provide bicycle and pedestrian improvements and amenities, consistent with adopted Engineering Standards and the St. Helena Bicycle Plan.
- ***CR2.J*** Consider the feasibility of a citywide bike sharing program for municipal and/or public use.
- ***CR2.L*** Require safe and accessible bicycle and pedestrian access for all newly-developed public facilities and sites.
- ***CR2.M*** Enhance the pedestrian environment within the commercial area, and support the development of bicycle trails throughout St. Helena with the goal of connecting to a countywide system. Encourage the use of group transit options in order to decrease tourist-generated traffic congestion. Encourage the use of pedi-buses by the school district to guide children safely and in a more healthful and sustainable manner to school.
- ***CR3.1*** Provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, walk, and take transit to work and reduce peak-period trip generation. Strategies include the following:
  - Transit subsidies or reimbursement to residents and employees (often referred to as "commuter check" or "EcoPass");
  - Car-share, car-pooling, and neighborhood electric vehicle programs to reduce the need to have a car or second car;
  - Integrated bicycle parking and support facilities, primarily to reduce trips within the city;
  - Modified parking codes to manage the supply of parking that generates frequent turn-over and serves multiple users; and
  - Marketing and information programs to encourage alternative transportation modes.
- ***CR3.2*** Support the implementation of NVTA goals to reduce/restrain growth of automobile vehicle miles traveled (VMT).
- ***CR3.3*** Shift travel from single-occupancy vehicles to other modes so that by 2040, 45 percent of work trips by St. Helena residents and workers are by carpool, transit, walking or bicycling.
- ***CR3.5*** Work with the school district to increase the use of carpooling and the bus system to reduce drive-alone trips to St. Helena schools.
- ***CR3.6*** Support development of the bikeway and pedestrian networks to provide a convenient opportunity for at least 20 percent of commuters to get to work by walking or bicycling.
- ***CR3.7*** Support compact, mixed-use development as outlined in the Land Use and Growth Management and Housing elements.

- ***CR5.A*** Develop a "park-once" strategy for visitors to improve air quality, reduce congestion, promote alternatives to driving alone, and educate and involve businesses and residents. Work with employers to encourage employees to park on the fringes of downtown, thereby leaving convenient parking spaces open for shoppers.

Community Design Element

- ***CD1.2*** Promote the construction of sustainable buildings and landscaping in all public and private development projects.
- ***CD1.3*** Require construction and development practices that reduce energy demand through conservation and efficiency, such as the use of green building materials, site design to maximize passive heating and cooling and energy generation, on-site water reuse, water efficient landscaping, and use of low-flow appliances, among others.
- ***CD1.4*** Strengthen water conservation measures for development or construction that result in significant reductions in local water use and the protection of local water resources.
- ***CD1.B*** Adopt a Green Building and Landscaping Ordinance that establishes green building and landscaping site design standards customized to meet the unique climatic context of the community. Landscaping standards should limit impervious paving and identify standards and incentives that encourage the use of locally-propagated native, low-water, drought-tolerant planting, and integrated pest management practices.
- ***CD1.C*** Partner with third party agencies, such as PG&E, to encourage the inclusion of energy-efficient systems in remodels and retrofits of existing buildings and residences.
- ***CD1.D*** Consider offering incentives for improving energy-efficiency in existing buildings.
- ***CD6.2*** Promote the inclusion of bicycle and pedestrian trails and bicycle lanes throughout the City, as well as connections to regional trail systems, such as the Napa Valley Vine Trail.

Open Space Element

- ***OS3.E*** Promote the installation of drought tolerant and native plants in landscaping throughout the city. Potential measures include:
  - An education program that details water conservation measures for use in local landscaping;
  - Working with local nurseries to encourage education, demonstration, and sales of drought tolerant and native plants and water-wise irrigation systems. (Also see the Public Facilities and Services Element for additional policies and implementing actions relating to water conservation);
  - Require City parks and properties to be landscaped with drought tolerant native plants that allow for high shade capacity wherever possible and use water-wise irrigation systems as a model for residents and businesses.

Public Health, Safety, and Noise Element

- ***PS1.E*** Encourage and support regional efforts to use alternative modes of transportation.

- ***PS1.F*** Consider a citywide network to help commuters arrange carpools, including online coordination capabilities and designated areas for parking and pick-up.
- ***PS1.I*** Adopt a voluntary, employer-based transportation demand management (TDM) program for St. Helena businesses in compliance with the BAAQMD's 2000 Clean Air Program (CAP). Components of a TDM program should include measures to reduce the use of single-occupancy vehicles for work-related commuting, such as carpool/vanpool matching services and employer-sponsored transit passes.

Climate Change Element (New Element)

- ***CC1.1*** Promote a "walkable" and "bikeable" city.
- ***CC1.2*** Support transportation planning efforts to optimize fuel efficiency and reduce vehicle miles travelled on local roads.
- ***CC1.3*** Seek initiatives that provide efficient modes of transportation for visitors and residents.
- ***CC1.A*** Adopt and implement pedestrian and bicycle networks within St. Helena that may connect to a countywide multi-use trail that extends from Calistoga to American Canyon.
- ***CC1.B*** If feasible maintain and enhance existing express bus, local bus, and para-transit services. Provide shuttle service between the three upvalley towns. Support the establishment of a northbound express bus during peak commute hours. Ensure that these services provide opportunities to connect with proposed countywide service improvements, such as a centralized transit center in Downtown Napa.
- ***CC1.C*** Expand Park and Ride areas and other support facilities to encourage public transportation use and car and van pooling
- ***CC1.D*** Evaluate truck and freight rail routes through the city. Based on these findings, develop policies and strategies to improve circulation and neighborhood compatibility issues.
- ***CC1.E*** Adopt and implement transportation plans in accordance with the Napa Valley Transportation Authority's (NVTA) Strategic Transportation Plan to increase transit service and ridership in St. Helena and connections with County transit services.
- ***CC1.F*** Establish programs to reduce vehicle miles traveled by supporting local hiring, food production, farmers' markets, and community-based "buy local" campaigns. For General Plan purposes, "local" includes St. Helena and its residents, as well as the residents and areas of the surrounding towns and unincorporated County that have traditionally been served by St. Helena's commercial and retail services.
- ***CC1.G*** Evaluate parking standards to help reduce vehicle miles traveled and reduce vehicle idling.
- ***CC1.H*** Increase walkability and bikeability to encourage a reduction in local auto trips. Strengthen outreach to increase awareness of pedestrian and bicycle amenities throughout the city.

- ***CC1.I*** Require discretionary development projects to assess and mitigate the impacts of vehicle miles traveled using transportation demand management programs, including providing transit amenities.
- ***CC1.J*** Initiate programs that encourage car-free tourism through incentives, outreach, awareness, and creating a bicycle and pedestrian-friendly environment.
- ***CC1.K*** Adopt and implement programs to assist businesses and organizations switch from fossil fuel-powered fleet vehicles to vehicles powered by clean, renewable energy sources.
- ***CC1.L*** Develop parks and open spaces in support of efforts to create walkable, bikeable mixed-use neighborhoods, especially to complement higher-density development and connect lower-density areas.
- ***CC1.M*** Design and operate the public street system to optimize fuel efficiency. Consider fuel efficiency in the design of street extensions, connections, and right-of-way controls at intersections, and monitor and adjust traffic signals.
- ***CC2.1*** Encourage measures to reduce energy demand through conservation and efficiency.
- ***CC2.2*** Support local efforts to improve the energy supply by switching from fossil fuels to renewables.
- ***CC2.A*** Partner with the County of Napa to implement an AB811 program that makes funding available to residential and commercial property owners seeking to improve their properties to conserve energy and water, and to generate solar energy.
- ***CC2.B*** Pursue state and federal funding programs designed to reduce energy demand through conservation and efficiency.
- ***CC2.C*** Implement Title 24 energy conservation standards for new buildings, and other State building code standards for high performance "green" buildings. Utilize established green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green.
- ***CC2.D*** Continue to reduce energy use by promoting domestic water conservation and requiring water-efficient landscape improvements associated with new construction.
- ***CC2.E*** Reduce greenhouse gas emissions from buildings and energy use. Require or request that new development projects analyze greenhouse gas emissions due to energy use and incorporate energy and safe yield water conservation measures into projects.
- ***CC2.F*** In support of countywide energy generation efforts, increase local renewable energy generation. Adopt production standards for the City based on quantifiable measures that increase per capita generation levels.
- ***CC2.G*** Remove regulatory impediments and economic disincentives associated with the generation and use of energy from renewable sources, such as wind, geothermal, and solar energy.
- ***CC2.H*** Establish programs that encourage owners to retrofit existing structures to incorporate energy-efficient and "green" building standards.

- ***CC3.1*** Enhance recycling, composting, and source reduction services for residential and commercial uses to support Napa County's countywide waste reduction goal to achieve overall waste diversion of 75 percent to 90 percent by 2020.
- ***CC3.A*** Establish programs and create incentives to achieve a 75 to 90 percent citywide construction and demolition debris waste diversion level by 2020.
- ***CC3.B*** Establish programs and create incentives to achieve a 75 percent organic (food and green) waste diversion level by 2020.
- ***CC3.C*** Establish citywide collection services for segregated food waste from commercial sources.
- ***CC3.D*** Encourage home composting of organic waste.
- ***CC3.E*** Create and support other programs, such as the Napa County Green Business Program and the green restaurant program, that help achieve the 75 to 90 percent overall waste diversion goal.
- ***CC3.F*** Adopt environmentally-preferable purchasing measures and explore joint-purchasing agreements with partner agencies and businesses.
- ***CC4.1*** Support efforts to protect and increase the amount of vegetation and biomass in soil and reduce emissions from agricultural sources.
- ***CC4.2*** Encourage responsible and sustainable agricultural and landscaping practices.
- ***CC4.3*** Strengthen water conservation measures that result in significant reductions in local water use and the protection of local water resources.
- ***CC4.4*** Support efforts to expand and improve the City's managed urban forest program in order to reduce greenhouse gas emissions and improve overall air quality.
- ***CC4.5*** Promote community gardens to reduce emissions generated in food transportation.
- ***CC4.A*** Establish programs to support and encourage local agriculture, food production, and school and community gardens.
- ***CC4.B*** Promote edible landscaping where possible.
- ***CC4.C*** Establish programs and plans that create and enhance urban forests and greenways.
- ***CC4.D*** Assess the impact of land use changes, new vineyards, and urban development on carbon sequestration.
- ***CC4.E*** Support efforts by local growers and restaurants to produce and use locally-grown food and remove associated regulatory hurdles.
- ***CC4.F*** Revise ordinances to further protect habitat and mitigate the conversion of oak woodlands, natural resources, riparian habitat, and other important natural communities by permanently protecting similar habitats.
- ***CC4.G*** Support and promote the Napa Green Certified Winery Program and the Napa Green Certified Land Program.

- ***CC4.H*** Adopt landscape ordinances that promote drought resistant plants, and limit or restrict lawns and other high-water-demand plants unless irrigated with reclaimed or grey water systems.
- ***CC4.I*** Develop and adopt energy-saving and environmentally-sound domestic water conservation plans.
- ***CC4.J*** Establish an urban forestry program to ensure a coordinated and comprehensive approach to maintaining and increasing the City's trees especially native varietals when possible.
- ***CC5.1*** Support local efforts to market programs and conduct community outreach through schools, non-profit groups, community organizations, and the business community to increase participation in greenhouse gas (GHG) reduction efforts.
- ***CC5.2*** Engage and advocate for collaborative programs, policies, and legislative solutions at the regional, state, federal, and global levels to reduce global GHG emissions.
- ***CC5.3*** Expand local awareness about gardening, composting, and agriculture.
- ***CC5.A*** Partner with the St. Helena Unified School District, private schools, community-based non-profit organizations, and others to undertake public outreach and education efforts that broaden community involvement in reducing greenhouse gas emissions.
- ***CC5.B*** Market and encourage participation in incentive programs that improve energy efficiency.
- ***CC5.C*** Foster and build public-private partnerships that help achieve greater energy efficiency and reduce greenhouse gas emissions.
- ***CC5.D*** Promote programs designed to advance sustainable business practices in St. Helena. Use the Napa County Green Business Program as a model for a City-based effort.
- ***CC5.E*** Participate in and help develop effective regional, state, and federal solutions to reduce emissions.
- ***CC5.F*** Engage and assist local agencies and utility companies toward achieving greenhouse gas reduction targets.
- ***CC5.G*** Enable long-term solutions by investing in and supporting science and engineering education.
- ***CC5.H*** Support the United States' participation in international greenhouse gas reduction efforts.
- ***CC5.I*** Establish an outreach program to raise public awareness about gardening, composting, and agriculture. Utilize public access television, the City's website, public notices, and workshops to engage a broad and diverse range of residents.
- ***CC6.1*** Ensure that the City leads by example in managing its local government operations while implementing the following policy directions:
  - Encourage the reduction of fossil fuel consumption by local government operations.
  - Improve energy efficiency, implement alternative and renewable energy solutions, and reduce greenhouse gas emissions in City and county facilities and operations.

  - Reducing solid waste from City and County operations and facilities.

- ***CC6.A*** Transition City fleets to vehicles powered by clean, renewable energy sources.
- ***CC6.B*** Install electric vehicle charging stations with funding from state and federal sources.
- ***CC6.C*** Encourage alternatives to agency employees' use of single-occupancy vehicles by providing bicycle racks, preferential parking permits for carpools and vanpools, commuter information, and other incentives.
- ***CC6.D*** Conduct audits and regularly monitor the effectiveness of City and County energy efficiency implementation measures and adapt them to meet targets.
- ***CC6.E*** Convert street lighting, water pumping, water treatment, and other energy-intensive operations to more efficient technologies.
- ***CC6.F*** Ensure that new municipal or substantially-renovated municipal facilities incorporate cost-effective strategies for reducing greenhouse gas emissions, conserving energy and water, and utilizing sustainable construction practices.
- ***CC6.G*** Consider carbon emissions from the production, transportation, use, and disposal of goods as a criterion for City purchasing decisions.
- ***CC6.H.*** Establish a comprehensive, user-friendly recycling program that involves all City departments and facilities. Recover 70 to 85 percent of all waste generated in City operations.
- ***CC6.I.*** Install renewable energy systems at City facilities.
- ***CC6.J*** Review and update the implementation actions recommended by the City's Climate Protection Task Force (CPTF) on an annual basis.

Parks and Recreation Element

- ***PR6.1*** Promote walking and bicycling as safe and convenient modes of transportation.
- ***PR6.2*** Develop a comprehensive network of bicycle and pedestrian trails to enhance bicycle and pedestrian connectivity throughout the city and the region.
- ***PR6.3*** Promote the inclusion of bicycle and pedestrian trails, and bicycle lanes throughout the city, as well as connections to regional trail systems, such as the Napa Valley Vine Trail.
- ***PR6.A*** Develop and adopt a citywide bicycle and pedestrian master plan to improve bicycle and pedestrian safety, and to encourage community members to walk and bike more often. Build on St. Helena's existing partnership with the Napa Valley Transportation Authority (NVTA) to ensure that the City's master plan is consistent with countywide transportation planning efforts.
- ***PR6.B*** Develop guidelines for the design, construction, and maintenance of bicycle and pedestrian trails in St. Helena. Include guidelines for installing context-sensitive and solar lighting, and mitigating noise impacts from the trails. Include guidelines for wayfinding and interpretive exhibits that use signs, art, and other visual clues to enhance users'

experiences. Highlight the rich history of the City and provide education and information for users. Coordinate the guidelines with Napa County or regional trail connections.

- ***PR6.C*** Develop and adopt an ordinance that requires new development and redevelopment projects to provide bicycle and pedestrian improvements and amenities.

IMPACTS

Impact 3.6-1 Development under the Proposed Plan would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (*Significant and Unavoidable*)

Implementation of the Proposed Plan would generate direct and indirect GHG emissions. Sources of direct emissions would include mobile vehicle trips, natural gas combustion, and landscaping activities. Indirect emissions would be generated by electricity consumption, waste and wastewater generation, and water use. Significance thresholds for GHG emissions were established using the methodology discussed above in the Methodology and Assumptions section. Using BAAQMD's CEQA Guidelines, the efficiency metric for general plans has been applied for the BAAQMD jurisdictional region, resulting in an emissions target of 2.3 $MTCO_2e$ per service population by 2040. The emission targets account for all emissions sectors in the state, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target of a 40 percent reduction of emissions under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050. These targets represent California's recognition of its "fair share" of global efforts to reduce GHG emissions to limit global warming below two degrees Celsius. This limit is consistent with the Paris Agreement, which sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to below two degrees Celsius (United Nations Framework Convention on Climate Change, 2018).

The following analysis is based on data gathered for the purposes of creating a current GHG inventory for a base year of 2018 and projecting emissions to 2030, the year for which Executive Order B-30-15 sets a GHG target, and 2040, the buildout year for the Proposed Plan. The City of St. Helena's GHG emissions from the baseline inventory were 76,012 $MTCO_2e$ per year, or 6.7 $MTCO_2e$ per year for the service population. To project future GHG emissions, the analysis provides a baseline forecast of GHG emissions, and models forecasts of future GHG emissions through 2040. The analysis then quantifies GHG reductions from State actions and the Proposed Plan policies and applies these reductions to the emissions forecast.

Business as Usual Forecast

Under BAU conditions, St. Helena's emissions are projected to be 72,591 $MTCO_2e$ in the year 2040. Emissions are projected to decrease between baseline and 2030, but then increase through 2040, which is a result of reduced emissions from transportation as a result of the ACC program and the Pavley Fuel Efficiency Standards, which do not yet set goals beyond 2030. Table 3.6-6 shows the citywide emissions for each sector and the total emissions for all sectors.

The greatest projected emissions would continue to be from the transportation sector, which accounts for 54 percent of emissions in 2030 and 50 percent of emissions in 2040. The

commercial/industrial sector would make up 20 percent of emissions in both 2030 and 2040. Residential emissions make up 15 percent of emissions in both 2030 and 2040.

Table 3.6-6: BAU Forecast Emissions by Sector, 2018 to 2040 ($MTCO_2e$ per year)

Sector	*2018*	*2030*	*2040*
Residential	9,890	10,529	11,092
Commercial/Industrial	12,773	13,859	14,832
Transportation	44,531	36,180	34,244
Solid Waste	3,734	4,170	4,572
Water Transport, Distribution, and Treatment	138	169	169
Wastewater	181	206	212
Off-Road Equipment	4,631	5,778	7,342
Public Lighting	37	39	41
Agriculture	97	91	87
TOTAL	**76,012**	**71,021**	**72,591**
$MTCO_2e$ Per Service Population	6.7	-	5.4

Source: Dyett & Bhatia, 2018

GHG Reductions from State and Regional Actions

GHG reductions from the State Renewable Portfolio Standard and Title 24 building efficiency standards are discussed in this section.

MCE Renewable Energy Goals

As previously discussed under the Environmental Settings section above, St. Helena joined MCE in 2016. A majority of St. Helena's residents have remained MCE customers instead of opting out to continue with PG&E service. Currently, the default option for St. Helena customers is MCE's "Light Green" option, which is sourced from a minimum of 55 percent renewable energy. Under the BAU scenario, it is assumed that the proportion of renewables in MCE's portfolio remains at its 2018 rate. However, in their 2018 Integrated Resource Plan, MCE has set a goal to increase the renewable energy in their portfolio to 80 percent for the Light Green option by 2025. Emissions reductions related to achieving this renewable energy goal are provided in Table 3.6-7 GHG Forecast with State and Regional Actions.

Renewable Portfolio Standard

California's RPS, discussed under the State Regulations section above, is one of the most ambitious renewable energy standards in the country. The RPS requires that investor-owned utilities, like PG&E, supply 33 percent of their electricity from renewable resources by 2020 and 50 percent of their electricity from renewable sources by 2030. Upon joining MCE in 2015, the majority of

residents and businesses within the City of St. Helena has received their electricity through MCE and not PG&E. MCE has already surpassed the RPS, with more than 50 percent of its electricity coming from renewable sources in 2017. However, it is estimated that approximately 11 percent of St. Helena has opted out of MCE and still receives power from PG&E. Therefore, a portion of St. Helena's electricity emissions would still be reduced by the RPS. Emissions reductions from the RPS for the City of St. Helena are provided in Table 3.6-7: GHG Forecast with State and Regional Actions.

Title 24 Building Efficiency Improvements

Title 24, discussed under the State Regulations section above, is California's Building Energy Code. The most recent Title 24 code became effective in 2017. The Title 24 building efficiency improvements' effects on emissions through the 2013 update were automatically incorporated into the baseline inventory since this code update was already in effect by 2018. Emissions reductions from Title 24 for the City of St. Helena are provided in Table 3.6-7: GHG Forecast with State and Regional Actions.

Emissions Reductions

The annual reductions from the above-referenced State and regional actions were combined. Table 3.6-7: GHG Forecast with State and Regional Actions lists the total BAU forecast for years 2030 and 2040, juxtaposed with reductions from State and regional actions.

Table 3.6-7: GHG Forecast with State and Regional Actions

	Year	
	2030	*2040*
BAU Forecast Emissions with General Plan Land Use and Circulation System (MTCO2e per year)	66,595	67,885
Emissions Reductions from Renewable Energy[1] (MTCO2e per year)	4,590	4,880
Emissions Reductions from Title 24 Building Efficiency Improvements (MTCO2e per year)	451	873
Total Forecast Emissions with General Plan Land Use and Circulation System & State/Regional Actions		
MTCO2e per year	65,980	66,838
MTCO2e per service population per year	-	**5.0**
BAAQMD Efficiency Threshold (MTCO2e per service population per year)	3.7	2.3

Notes:

1. Calculation includes reductions from both the RPS and MCE's renewable energy goals.

Numbers in **bold** represent emissions over the specified thresholds.

Source: Dyett & Bhatia, 2018

GHG Reductions from Proposed General Plan Transportation Policies

This section describes Proposed Plan policies that meet three requirements: (1) reduce GHG emissions, (2) quantify emissions reductions, and (3) explain how these policies will be implemented. There are many Proposed Plan policies that aim to reduce GHG emissions without specifying a target for reduction or how the policy will be implemented. While these policies can help reduce emissions, they cannot be quantified in their generalized form. Proposed Plan policies related to transportation that produce quantifiable reductions in GHGs are organized according to the following categories:

1. Pedestrian Improvements and Increased Connectivity;
2. Transportation Improvements; and
3. Increased density.

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* report was developed as a resource for local governments to assess emissions reductions from GHG mitigation measures (California Air Pollution Control Officers Association, 2010). This GHG analysis uses the methodology outlined in the CAPCOA report for categories one through three listed above to quantify emissions reductions from the Proposed Plan policies.[8] The reductions are applied to the forecast to arrive at the "modified forecast." GHG reductions from Proposed Plan transportation policies are provided in Table 3.6-8: GHG Reductions from Proposed Plan policies and implementing actions ($MTCO_2e$ per year).

Pedestrian Improvements and Increased Connectivity

There are numerous improvements described in the Proposed Plan that would enhance connectivity for non-motorized transportation, including pedestrians, including policies CC1.1, CR3.3, and CR3.6 and implementing actions CC1.A, CC1.H, CC1.J, and CC1.L (listed above). Providing an improved pedestrian network and increasing connectivity encourages people to walk more and results in people driving less, causing a reduction in vehicles miles traveled (VMT). An estimate of a 1 percent reduction in VMT from pedestrian improvements and connectivity was assumed, which corresponds to a reduction of 362 $MTCO_2e$ per year in 2040 for the City of St. Helena, based on CAPCOA guidance. See Table 3.6-8: GHG Reductions from Proposed Plan Policies and Implementing Actions ($MTCO_2e$ per year) for policy-related reductions.

Transportation Improvements

The City of St. Helena is accessible to neighboring communities via public transit and visitor-oriented rail service. The city is served by Napa Valley Transit Authority (NVTA) bus routes and the Wine Train, which connect St. Helena to Napa, Calistoga, and other surrounding cities. NVTA also runs the Vine para-transit shuttle, which is an on-call shuttle service for persons with disabilities. Proposed Plan policies seek to further transit improvement efforts by enhancing bus and para-transit services, providing shuttle services, and partnering with Napa County to increase

[8] While many of the policies' impacts are project-level in nature, much of the supporting literature is from studies on a citywide, countywide, or regional context. The methodology in this analysis is based on these regional studies, which is therefore applicable to the General Plan policies listed in this analysis.

transit service and ridership (Policy 1.3 and implementing actions CC1.B and CC1.E). Policies within the Circulation Element also look to explore options to utilize the Wine Train as a means to reduce VMT and driving trips (Policy CR1.7).

According to CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, transit system improvements can result in the following reductions: 0.1- to 8.2-percent VMT reduction from expanding the transit network, 0.5- to 24.6-percent VMT reduction from increasing transit accessibility, and 0.02- to 2.5-percent VMT reduction from increasing transit service frequency and speed. Conservatively assuming the combined effect of the proposed General Plan's transit policies, summing the low end of the VMT reduction ranges gives a 0.62-percent reduction in VMT emissions, or estimated 212 $MTCO_2e$ per year reduction by 2040.

Increased Density

As of 2018, the City of St. Helena has approximately 2,735 housing units and 2,358,000 square feet of commercial and industrial space. The Proposed Plan is projected to result in 3,067 housing units and 2,738,000 square feet of commercial and industrial space in 2040, for an increase of 12 percent and 16 percent over 2018 conditions, respectively. There is also a projected 23 percent increase in the number of jobs between 2018 and 2040. Since development under the Proposed Plan would be concentrated inside the Urban Limit Line (ULL) with only minor adjustments to the ULL border, the additional housing units and commercial space would result in a slight increase in density in St. Helena between 2018 and 2040. This increase in density can be correlated to a decrease in VMT, and therefore to reduced transportation emissions, as more residents and employees would be located in mixed-use in areas near the center of the city, near transit and other amenities.

According to CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, the reductions in GHG emissions due to an increase in density is quantified based on reductions in VMT and the elasticity between VMT and density. Based upon the baseline and 2040 buildout scenario within the Proposed Plan, a dwelling units per acre increase of about 12 percent and increase of 23 percent for jobs per jobs acre can be assumed.[9] This correlates to a total emissions reduction due to density increases of approximately 1,213 MTCO2e.

Emissions Reductions

Table 3.6-8: GHG Reductions from Proposed Plan Policies and Implementation Actions ($MTCO_2e$ per year) shows the GHG reductions from each of the above components for St. Helena. The largest reduction would come from commute trip reductions and increased density. Transportation and pedestrian improvements would produce smaller reductions in VMT and transportation emissions.

[9] Residential density increase was taken by dividing the numbers of residential units in 2018 and 2040 by the areas designated as residential in the General Plan. Jobs per jobs acre was calculated by dividing the number of jobs in 2018 and 2040 by the areas designated as central business, service commercial, and industrial in the General Plan. Additional information on methodology can be found in the CAPCOA guidelines.

Table 3.6-8: GHG Reductions from Proposed General Plan Policies and Implementing Actions ($MTCO_2e$ per year)

Policy/Action Category	*2030*	*2040*
Pedestrian Improvements and Increased Connectivity	362	342
Transit Improvements	224	212
Increased Density	-	1,213
TOTAL	**586**	**1,767**

Source: Dyett & Bhatia, 2018

Modified Forecast

Table 3.6-9: Modified Forecast (Forecast Emissions with General Plan Land Use and Circulation System, State Actions, and Additional General Plan Policies) and Emissions Targets shows the total citywide emissions with the reductions from the following policies and actions described above:

- Proposed Plan land use and circulation system;
- State actions; and
- Proposed Plan policies and implementing actions (identified below).

Projected emissions drop from 2018 through 2030 from the combined effect of GHG reduction policies and actions but increase from 2030 through 2040. The projected emissions rise between 2030 and 2040 because there are no increases in federal or State standards related to renewable energy or other GHG reduction methods. While additional State and federal initiatives to reduce GHG emissions are likely to occur, as of 2018 none have been established for a horizon year beyond 2030 and cannot be modeled. Therefore, this increase represents a conservative estimate. With the effect of all the GHG reductions considered, the total City of St. Helena forecast emissions are 65,393 $MTCO_2e$ per year in 2030 and 65,070 $MTCO_2e$ per year in 2040.

Table 3.6-9: Modified Forecast and Emissions Targets shows that the City of St. Helena will not meet its targets for 2030 and 2040, even with currently defined State and regional actions and the GHG reduction measures in the Proposed Plan. New development and redevelopment under the Proposed Plan would result in a net increase in GHG emissions overall; however, 2040 emissions per service population would decrease in comparison to baseline (2018) conditions. Nevertheless, the resulting 2040 per capita emissions are still greater than the BAAQMD efficiency and the CARB Scoping Plan targets.

Table 3.6-9: Modified Forecast and Emissions Targets

	2030	*2040*
Total Modified Forecast (MTCO2e per year)[1]	65,393	65,070
Significance Threshold (MTCO2e per service population)[2]	3.7	2.3
Total Modified Forecast (MTCO2e per service population)	-	**4.9**

Notes:

1. Includes reductions from General Plan Land Use and Circulation System, State/Regional Actions, and Additional General Plan Policies.
2. For information on determining the significance threshold, see "Methodology and Assumptions" section.

Numbers in **bold** represent emissions over the specified thresholds.

Source: Dyett & Bhatia, 2018

As discussed previously, because full buildout of the Proposed Plan would occur post-2020, it is appropriate to evaluate the Proposed Plan against the substantial progress required to meet the statewide milestone reduction targets and to abate the more consequential aspects of climate change. As shown in Table 3.6-9, the Proposed Plan's net operational GHG emissions in 2040 would exceed the efficiency metric of 2.3 MT CO_2e per service population calculated in the Methodology and Assumptions section. As such, operational GHG emissions from full buildout of the Proposed Plan in 2040 could conflict with the GHG emissions reduction trajectory for 2050 under EO S-3-05.

As discussed below under Impact 3.6-2, in the analysis of consistency with the goals of SB 32 and S-03-05, the achievement of long-term GHG reduction targets will require substantial change in terms of how energy is produced and consumed, as well as other substantial economy-wide changes, many of which can only be implemented by the State and federal government. At the State level, the long-term policy and regulatory changes needed to meet the statewide 2050 emissions reduction target are unknown at this time. The extent to which the Proposed Plan's emissions and resulting impacts would be mitigated through implementation of statewide (and nationwide) changes is speculative, and any calculation of post-2030 emissions cannot take into account future State or federal actions that may be taken to achieve long-term reductions. As such, placing the entire burden of meeting long-term reduction targets on local government or new development would be disproportionate and likely ineffective. Nevertheless, given that the Proposed Plan's emission levels would exceed the significance threshold for 2040, as calculated in the Methodology and Assumptions section, the Proposed Plan would result in a potentially significant impact with respect to GHG emissions.

To reduce the Proposed Plan's GHG emissions in 2040, Mitigation Measure GHG-1 is recommended, which includes strategies derived to reduce GHG emissions to a level consistent with BAAQMD's efficiency threshold of 2.3 MTCO2e per service population. Currently, the City of St. Helena does not have a Climate Action Plan that addresses community GHG emissions reductions. Additionally, many of the policies and implementing actions within the Proposed Plan discuss improvements that would generally decrease emissions but do not set specific and quantifiable goals (i.e. setting a goal for 100 percent renewable energy by 2040 or installing 20 miles of bike lanes). The adoption and implementation of a Climate Action Plan with specific and

quantifiable goals to reduce emissions, as well as indicators to track progress, will help the City reduce the impacts associated with implementation of the Proposed Plan. As the transportation sector is the largest source of emissions within the City of St. Helena in 2018 and is projected to remain the largest source in 2040, it has the most opportunity for reductions.

As shown in the analysis above, the Proposed Plan would result in a substantial increase in GHG emissions from baseline conditions by 2040, and would exceed the 2040 efficiency target. This would mean that the Proposed Plan does not make substantial progress towards meeting the State's 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Additionally, since the significance thresholds are a reflection of emissions reductions needed to meet the 80 percent GHG reduction target as a State, St. Helena's failure to meet the thresholds may have a cumulative impact on whether or not the State will meet its target.

Mitigation Measure GHG-1 would require the adoption of a St. Helena Climate Action Plan that lays out a series of goals, policies, and actions to reduce GHG emissions to a level that is consistent with BAAQMD's efficiency targets and, therefore, State GHG reduction goals. Policies within the Climate Action Plan must set specific targets for GHG reductions where possible (i.e. source a specific percentage of the City's power through renewable sources, install a specific length of bicycle lanes, or install greywater systems in a specific percentage of homes in St. Helena). However, given that additional State and federal actions are necessary to ensure that State and federally regulated emissions sources (i.e., sources outside the City's jurisdictional control) are needed to achieve the 2050 target, and that, at this time, there are no post-2030 State or federal measures in place that would assist the City in achieving the 2040 efficiency target, even with implementation of Mitigation Measure GHG-1, GHG impacts as a result of the Proposed Plan are considered significant and unavoidable.

Significance Before Mitigation: Significant

Mitigation Measures

GHG-1: The City of St. Helena shall adopt and begin to implement a Climate Action Plan within a goal of 18 months, but no later than 36 months, of adopting the Proposed Plan update to address the GHG reduction goals of Executive Order B-30-15 and Executive Order S-03-05 for GHG sectors that the City has direct or indirect jurisdictional control over. The Climate Action Plan shall include a community inventory of GHG emission sources, and quantifiable GHG emissions reduction targets for 2030 and 2050, and an interim target for the General Plan buildout year 2040, that are consistent with the statewide GHG reduction targets. The City shall monitor progress toward its GHG emissions reduction goals and prepare reports every five years detailing that progress.

Significance After Mitigation: Significant and unavoidable. While the Proposed Plan includes measures to align the City with the State's long-term GHG reductions, many of these policies and implementing actions are general and non-quantifiable. As such, the projected emissions at buildout in 2040 are expected to exceed the significance threshold. While Mitigation Measure GHG-1 would require the City to develop a Climate Action Plan that specifies a GHG reduction goal in line with the State's targets, as well as quantifiable and implementable policies, additional federal and State measures would be necessary to reduce GHG emissions to meet the long-term GHG reduction goals under Executive Order B-30-15, which identified a goal to reduce GHG

emissions to 40 percent of 1990 levels by 2030, and Executive Order S-03-05, which identified a goal to reduce GHG emissions to 80 percent of 1990 levels by 2050.

Impact 3.6-2 Development under the Proposed Plan would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (*Significant and Unavoidable*)

Plan Bay Area

The ABAG RTP/SCS, Plan Bay Area, includes a set of policy objectives related to mobility, system preservation and safety, social equity, healthy environment, and economic growth. The RTP will assist in ABAG's implementation of SB 375, the California Global Warming Solutions Act of 2006, and regional GHG targets. With implementation of the Proposed Plan's policies related to sustainability and multi-modal transportation objectives, the Proposed Plan would complement the goals and policies of the RTP/SCS and would continue to carry out the goals of AB 32 and SB 375. For example, Plan Bay Area focuses growth in existing developed areas and the Proposed Plan allows for population and job growth within St. Helena's Urban Limit Line (ULL), while limiting growth that may encroach into agricultural or open space areas outside of the ULL. Plan Bay Area aims to expand public transit service, as well as increase bicycling and walking. The Proposed Plan includes extensive policies and action relating to improving St. Helena's access to public transit and to expand the cities bicycle and pedestrian network. These policies and implementing actions are listed in the Relevant Policies and Implementing Actions section above and can be found throughout the Proposed Plan, including the Land Use and Growth Management, Circulation, and Climate Change elements. Therefore, future development projects and land uses proposed under the Proposed Plan would, by nature, result in reduced transportation and energy GHG emissions relative to emissions under the scenario where only State actions would be implemented, as shown under Impact 3.6-1 above. This would be consistent with and help achieve the overarching goal of Plan Bay Area to reduce GHG emissions.

CARB Scoping Plan, AB32, and EO S-03-05

AB32 and EO S-03-05 set targets for State GHG reductions of 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2017 CARB Scoping Plan creates a pathway to achieving those goals by reducing GHG emissions to 4.0 MTCO2e per capita by 2030 and 2.0 MTCO2e per capita by 2050. BAAQMD's CEQA Guidelines, as discussed in the Methodology and Assumptions section, builds upon the CARB per capita thresholds by creating an efficiency threshold that uses service population in lieu of resident population, which is more appropriate for a land use plan, such as the Proposed Plan. Through implementation of the Proposed Plan policies aimed at reducing GHG emissions, the Proposed Plan would serve to implement numerous strategies and measures aimed at reducing GHG emissions. All of the policies and implementing actions without the Climate Change Element referenced above could potentially decrease St. Helena's GHG emissions. Additionally, policies in the Proposed Plan aim to reduce water use, construct more energy efficient buildings, provide walkable communities, decrease reliance on automobile transportation, and more. GHG-reducing policies and implementing actions can be found in nearly all of the elements in the Proposed Plan, including the Land Use and Growth Management, Economic Sustainability, Public Facilities and Services, Circulation, Community Design, Open Space, Public Health, Safety, and Noise, Climate Change, and Parks and

Recreation elements. While these policies and implementing actions could reduce GHG emissions, many do not set specific goals or targets for reductions, and therefore cannot be quantified at this time.

Accounting for State and federal standards and for policies within the Proposed Plan that can be quantified, the resulting 2040 per capita emissions exceed the significance threshold of 2.3 MTCO2e per service population, as calculated in the Methodology and Assumptions section. . This means that, absent additional measures at the State level, development under the Proposed Plan would conflict with CARB's 2017 Scoping Plan, AB 32, EO S-03-05, or BAAQMD's CEQA Guidelines (as they pertain to meeting the larger State goals for GHG reductions), as the City does not have direct control over certain aspects of transportation emissions, such as vehicle fuel efficiency standards or regional traffic. Meeting the aggressive State GHG reduction goals will require a substantial change in terms of how energy is produced and consumed, as well as other economy-wide changes, many of which can only be implemented by the State and federal government.

Implementation of Mitigation Measure GHG-1, described above, would help to reduce conflict with the GHG emissions reduction trajectory for 2050 articulated under EO S-3-05 to the extent practicable; however, as described above, further action is necessary at the State and federal levels to achieve the deep cuts to emissions sources outside the City's jurisdictional control needed to meet the GHG emissions reductions targets laid out by the State. Given that, at this time, there are no post-2030 State or federal measures that would assist the City in achieving the efficiency target in 2040, even with implementation of Mitigation Measure GHG-1, the potential exists for the Proposed Plan to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact remains significant and unavoidable.

Significance Before Mitigation: Significant.

Mitigation Measures

Refer to Mitigation Measure GHG-1 under Impact 3.6-1.

Significance After Mitigation: Significant and unavoidable. Projected emissions in 2040 are expected to exceed the efficiency threshold of 2.3MTCO2e per service population. As this threshold is a reflection of what each jurisdiction must accomplish to meet the State's goal, St. Helena's failure to meet the threshold may have a cumulative impact on the State's ability to achieve an 80 percent reduction in emissions below 1990 levels by 2050. While many of the policies and implementing actions within the Proposed Plan are meant to reduce GHG emissions and are therefore consistent with the intent of Plan Bay Area and the State's GHG emissions goals, without specified thresholds or goals, these emissions cannot be quantified. While Mitigation Measure GHG-1 would help to specify how the City can further reduce emissions through the development of a Climate Action Plan, it is unrealistic to place the entire burden of reducing emissions on the City since the majority of St. Helena's emissions result from transportation, which the City has limited direct control over due to trips that do not both start and end within the city limits and State or federal regulations governing fuel efficiency standards. At this time there are no post-2030 federal or State measures that would assist the City in achieving the efficiency target by 2040. Therefore, Impact 3.6-2 would remain significant and unavoidable.

Impact 3.6-3 Development under the Proposed Plan would not cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance. (*Less than Significant*)

As noted in Appendix F of the CEQA Guidelines, the means of achieving the goal of conserving energy and reducing wasteful, inefficient, and unnecessary consumption of energy include the following:

1. Decreasing overall per capita energy consumption.[10]
2. Decreasing reliance on fossil fuels such as coal, natural gas, and oil.
3. Increasing reliance on renewable energy sources.

Construction associated with future developments under the Proposed Plan would consume gasoline and diesel fuel through operation of heavy-duty, off-road construction equipment and on-road vehicles. The amount of fuel consumed by these activities would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of personnel. Because the Proposed Plan does not propose any specific development projects, the precise level and intensity of construction activities that would occur in the Planning Area through 2040 is not known at this time.

For the purposes of this analysis, it is assumed that the types of land uses envisioned under the Proposed Plan, which includes residential, commercial, industrial, and agricultural uses, would involve construction activities typical of most land use developments within the Planning Area and in the SFBAAB. Because construction emissions from both mobile and stationary sources are considered to be relatively short-term emissions that would cease once construction of a project is complete, they would represent a relatively short demand on local and regional fuel supplies that would be easily accommodated. Therefore, construction activities associated with the Proposed Plan would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy.

Future development under the Proposed Plan would generate vehicle trips once operational, which would consume gasoline and diesel. Future development would also result in the consumption of electricity and natural gas for power, heating, and cooking. Operational energy consumption (expressed in terms of million BTU) under existing conditions and 2040 conditions under the Proposed Plan is summarized in Table 3.6-10: Estimated Operational Energy Consumption. The projection of 2040 energy consumption includes electricity and natural gas use reductions from State actions and proposed General Plan policies, in addition to fuel savings achieved by proposed General Plan transportation policies that reduce overall VMT. More information on these policies and actions and their effect on GHG emissions is provided under Impact 3.6-1 above. Table 3.6-11: Estimated Energy Consumption Efficiency shows the estimated existing and projected 2040 energy consumption per service population.

As shown in Table 3.6-10: Estimated Operational Energy Consumption, implementation of the Proposed Plan would result in a net energy consumption decrease of 248,471 million BTUs at

[10] In the analysis below, per service population metrics are analyzed because energy from commercial and industrial land uses are considered.

buildout in 2040. While the number of residential units and commercial and industrial square footage would increase between 2018 and 2040 buildout, total energy use would decrease, primarily due to St. Helena's delivery of energy through MCE, which has much higher goals for renewable energy than PG&E, and the increase in fuel efficiency for vehicles that will result as more vehicles designed to meet stricter Pavley standards come into use.

As shown in Table 3.5-10: Estimated Operational Energy Consumption, a decrease in the per service population energy consumption would occur between 2018 and 2040 due to a decrease in energy consumption and an increase in service population. Whereas the 2018 per service population energy consumption is 106 million BTUs per year, the per service population energy consumption associated with the net new development introduced by the Proposed Plan at buildout in 2040 would be 71 million BTUs per year, which is approximately 33 percent lower when compared to baseline.

In addition, the Proposed Plan policies and implementing actions listed in "Relevant Policies and Implementing Actions" aim to reduce energy consumption and consequently would all help decrease GHG emissions. While many of the policies and implementing actions within the Proposed Plan do not set specific and quantifiable goals, they do address general concepts such as increasing energy efficiency and renewable energy, encouraging bicycle and pedestrian transit, decreasing car use by tourists, and more. When implemented, these actions would further decrease energy consumption from natural gas, electricity, and gasoline and diesel fuels.

Table 3.6-10: Estimated Operational Energy Consumption

Analysis Year/Source	*Million BTU/Year*
2018	
Electricity	331,843
Natural Gas	253,367
Mobile (gasoline and diesel)	609,226
Total	**1,194,436**
2040	
Electricity	251,092
Natural Gas	274,903
Mobile (gasoline and diesel)	419,970
Total	**945,966**
Net Decrease with Proposed Plan	(248,471)

Source: Dyett & Bhatia, 2018

Table 3.6-11: Estimated Energy Consumption Efficiency

	2018	*2040*	*Net Proposed Plan*
Energy consumption (million BTUs)	1,194,436	945,966	(248,471)
Service population	11,285	13,323	2,038
Million BTUs per service population	106	71	(35)
Percent Change from Existing	--	*-33%*	--

Source: Dyett & Bhatia, 2018

By decreasing demand for energy- and fuel-related energy resources both overall and on a per service population basis, operation of future land uses associated with the Proposed Plan would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy. Therefore, this impact is considered less than significant.

Mitigation Measures

None required.

Impact 3.6-4 The Proposed Plan would not conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2040, or any other applicable energy conservation regulations. *(Less than Significant)*

All future development under the Proposed Plan would be required to comply with the latest CBC requirements, including CBC Energy Efficiency Standards, as well as all federal, State, and local rules and regulations pertaining to energy consumption and conservation. The Proposed Plan includes policies that emphasize energy reduction strategies, as described in Impact 3.4-3, and does not contain policies that would conflict with existing energy conservation regulations.

Through implementation of Proposed Plan policies as described under Impact 3.4-3, the Proposed Plan would support the CARB passenger vehicle GHG emissions reduction targets through measures that would reduce VMT in the Planning Area. Additionally, CARB's LCFS, which aims to reduce the carbon intensity of the life cycle of gasoline and diesel fuels by 10 percent by 2020, would further assist in meeting established energy reduction goals and GHG emission reduction targets. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

3.7 Geology, Soils, and Seismicity

This section describes existing geologic conditions, including geologic and seismic hazards, in the Planning Area; applicable regulatory framework regarding geology, soils, and seismicity; and the potential geologic, soils, and seismic impacts of future development in the community in accordance with the Proposed Plan. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

The composition of topography, geologic material, soils, and groundwater conditions affect the geologic hazards in any given area. St. Helena is located within California's Coast Range Geomorphic Province, a geologically young and seismically active region. The Coast Range Province is characterized by a series of northwest-trending mountain ranges with intervening alluvium-filled valleys. Specifically, St. Helena is located in the northern portion of the Napa Valley where the alluvial fans of York and Sulphur creeks blend across the floor of the valley and intersect the Napa River.

Geology

The majority of land within the Planning Area is located on the floor of the Napa Valley. The valley floor is primarily layered with Holocene alluvium with small low lobes of Pleistocene alluvium exposed near the western margin. Alluvium consists mainly of unconsolidated gravel, sand, silt, and clay deposits that have been subject to redistribution by fluvial (stream) processes. St. Helena includes some upland areas both to the west (foothills of the Mayacamas Mountains) and east (foothills of the Vaca Mountains) of the valley floor. To the east, a 245-acre hillside area along Howell Mountain Road above Silverado Trail consists primarily of Sonoma Volcanics (Pliocene rhyolite, dacite, tuff, and pyroclastic rocks). To the northwest, between State Route 29 (SR-29) and Spring Mountain Road, additional low ridges of Sonoma Volcanics extend into the valley and into the city limits. Moderate hills of Franciscan Complex mélange (sandstone, shale, chert, conglomerate, and greenstone) wrap around the city to the south, southwest of Spring Mountain Road, with limited exposure areas of serpentinized ultramafic rock and Sonoma Volcanics amidst overlying hillslope deposits (Wagner & Bortugno, 1982; Graymer, et al., 2006). Table 3.7-1 provides an overview of the various geologic units in the Planning Area.

Table 3.7-1: Geologic Units in the Planning Area

Unit	*Age*	*Description*
Alluvium – Terrace Deposits	Holocene – Pleistocene	Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine.
Sandstone – Conglomerate	Pliocene and/or Pleistocene	Sandstone, shale, and gravel deposits.
Dacite – Rhyolite	Tertiary	Volcanic flow rocks; minor pyroclastic deposits.
Rhyolite – Dacite	Tertiary	Pyroclastic and volcanic mudflow deposits
Franciscan Complex	Jurassic to Cretaceous	Sandstone with smaller amounts of shale, chert, limestone, and conglomerate.
Franciscan Complex – Mélange	Jurassic to Cretaceous	Mélange of fragmented and sheared Franciscan complex rocks.
Serpentinite – Peridotite	Middle to Late Jurassic	Ultramafic rocks, mostly serpentine. Minor peridotite, gabbro, and diabase.

Sources: Ludington, S., et. al., 2007; Dyett & Bhatia, 2018

Topography

The broad plain of the valley bottom slopes gently from the northwest to the southeast, with an elevation of approximately 320 feet NGVD[1] at the foot of the northwestern hills and approximately 200 feet NGVD near the filtration plant and Napa River to southeast. In the foothills of the Vaca Mountains east of the Napa River, the properties above Silverado Trail rise to a maximum elevation of approximately 720 feet NGVD. Along the western edge of the city, the incorporated area includes portions of the foothills of the Mayacamas to about 540 feet NGVD, with a maximum elevation of approximately 740 feet NGVD atop a small knob just west of Dean York Lane (USGS, 1993; USGS, 1973).

Soils

Soil is generally defined as the unconsolidated mixture of mineral grains and organic material that mantles the land surfaces of the earth. Soils can develop on unconsolidated sediments, such as alluvium, and weathered bedrock. The characteristics of soil reflect the five major influences on their development: topography, climate, biological activity, parent (source) material, and time.

The Planning Area contains approximately 20 different individual soil types; however, these are grouped by type and character into soil "associations" or "complexes." Generally, these groups

[1] National Geodetic Vertical Datum of 1929, which is roughly equivalent to mean sea level.

have similar geophysical characteristics. As shown in Figure 3.7-1, roughly 73 percent of the soils in the Planning Area (most of the valley floor) are Bale, Cole, Cortina, or Pleasanton loams. Many of these soils are moderately corrosive to concrete, and moderately to highly corrosive to steel. They are also moderately expansive and may cause shrink-swell damage to structures. Implications of soil characteristics from a geologic hazard perspective (e.g., expansive soils) are discussed below in the "Seismic and Geologic Hazards" subsection (United States Department of Agriculture, 2017).

Figure 3.7-1

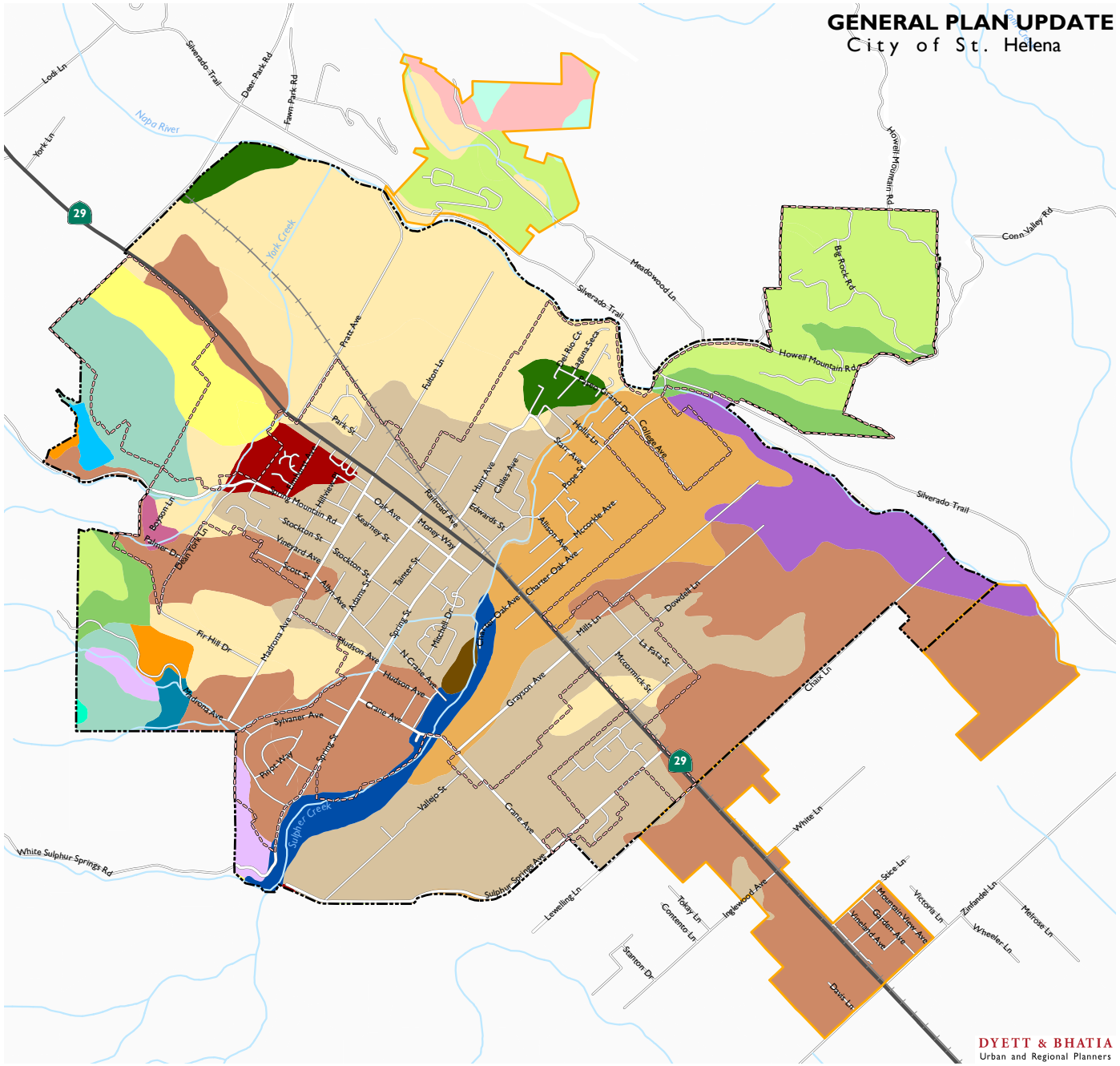
Soil Types

- Aiken Loam (102)
- Bale Clay Loam (104, 105)
- Bale Loam (103)
- Boomer-Forward-Felta Complex (110)
- Boomer Gravelly Loam (109)
- Cole Silt Loam (118)
- Cortina Very Gravelly Loam (124)
- Cortina Very Stony Loam (125)
- Felton Gravelly Loam (136)
- Forward Gravelly Loam (138, 139, 140)
- Forward-Kidd Complex (141)
- Hambright-Rock Outcrop Complex (151, 152)
- Henneke Gravelly Loam (153, 154)
- Maxwell Clay (161)
- Perkins Gravelly Loam (168)
- Pleasanton Loam (170, 171)
- Riverwash (174)
- Rock Outcrop-Kidd Complex (177)
- Sobrante Loam (179)
- Yolo Loam (181, 182)
- Water (183)

- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

0 1,000 2,000 4,000 Feet

Data Source: USDA Soils Data, 2017; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018



Seismic Conditions

The Planning Area is located in the seismically active San Francisco Bay Area. The main feature generating seismic activity in the region is the tectonic plate boundary between the North American and Pacific plates. Locally, this boundary is referred to as the San Andreas Fault Zone (SAFZ) and includes numerous active faults determined by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zoning Act to be "active" (i.e., to have evidence of fault rupture in the past 11,000 years). Some of the major active faults within the SAFZ include the San Andreas, Hayward, Rodgers Creek, Calaveras, San Gregorio-Seal Cove, Maacama, West Napa, Green Valley, Concord, Greenville, and Calaveras faults. St. Helena is located approximately 13 miles north of the Alquist-Priolo Earthquake Fault Hazard Zone (APEFHZ) for the West Napa Fault, 13 miles east of the Rodgers Creek Fault Zone and approximately 17 miles southwest of the APEFHZ for the Hunting Creek Fault. A less active portion of the West Napa Fault (active between 130,000 and 1.6 million years ago) is located in the southwestern portion of the City of St. Helena (USGS, 2006). Information on active regional faults is shown in Table 3.7-2, and active fault locations are shown in Figure 3.7-2.

Geologic and soil conditions in an area can influence the shaking effects of an earthquake. The Association of Bay Area Governments (ABAG) earthquake hazard mapping indicates that a magnitude 7.9 event on the San Andreas Fault (similar to the 1906 earthquake) or a 6.5 event on the West Napa Fault would result in strong to very strong (MMI-VII/VIII)[2] shaking in the area of St. Helena. Based on USGS mapping, the St. Helena vicinity ranges from a low hazard for liquefaction susceptibility (in the upland areas west of downtown) to highly susceptible in the lowlands adjacent to the Napa River, including Study Area 2, and Sulphur Creek. Slope stability issues and landslides have been mapped in the hillsides of the Napa Valley, and USGS maps indicate upland areas may be prone to slope instability and serve as sources for debris flows.

In a fact sheet published in 2003, the U.S. Geological Survey estimated that there was a 62 percent probability that between 2003 and 2032, a 6.7 or greater magnitude earthquake will occur in the San Francisco Bay Region. The probability of a 6.7 magnitude or greater earthquake occurring along individual faults was estimated to be 21 percent along the San Andreas Fault, 27 percent along the Hayward-Rodgers Creek Fault, and 11 percent along the Calaveras Fault (USGC, 2003).

On August 24, 2014, a 6.0 earthquake struck the Napa Valley. This was the largest earthquake to occur in the San Francisco Bay Area since the 1989 Loma Prieta quake. The earthquake occurred approximately four miles northwest of American Canyon, six miles southwest of Napa and 20 miles southeast of the Planning Area, according to the USGS. The quake was estimated to be about 11.3 kilometers deep and was considered "strong" by the USGS. Major quakes start at a 7.0 magnitude, according to the USGS scale. Seismologists identified the West Napa Fault as the causative fault of the quake. While some of the fault segments that ruptured on August 24 had been previously mapped as part of the West Napa fault system, the rupture also extended northward where no faults had been mapped before. The length of the rupture was about 12.5 kilometers, considered unusually long for an earthquake of that size. Additionally, scientists measured up to 46 cm of slip, considered a significant amount (USGS, 2015). While damage from the quake was substantial in parts of the City of Napa, particularly in the downtown area along with some limited

[2] MMI refers to Modified Mercalli Intensity Scale which measures the intensity of earthquakes.

damage in the City of Vallejo, St. Helena experienced very little to no damage as a result of the earthquake.

Table 3.7-2: Alquist-Priolo Earthquake Fault Zones in the Vicinity of St. Helena

Fault	*Location and Direction from St. Helena*	*Slip Rate[1] and Recurrence Interval[2]*	*Historical Seismicity*	*M_W[3]*
Rodgers Creek	13 miles west – Petaluma Valley. Connects by means of right steps the Hayward Fault to the Maacama Fault.	Greater than 5.0 mm/year. Recurrence interval of 131-370 years (best estimate of 230 years).	M5.6, 1969 M5.7, 1969 M6.4, 1898 M5.6, 1893	7.0
Maacama (Central)	14 miles northwest – From Laytonville in Mendocino County to Mark West Creek in Sonoma County.	Greater than 5.0 mm/year. Recurrence interval of 220 years.	No recorded earthquakes greater than M6.0.	7.1
Hunting Creek – Berryessa	17 miles northeast – From the Wilson Valley south-southeast to the Cedar Roughs area west of Lake Berryessa.	Approximately 6 mm/year. Recurrence interval ~194 years.	No recorded earthquakes greater than M6.0.	6.9
Concord – Green Valley	18 miles southeast – Wooden Valley south to Suisun Bay.	Between 1.0 and 5.0 mm/year. Recurrence interval unknown.	No recorded earthquakes greater than M6.0.	6.9
West Napa	21 miles south – Along the western edge of the Napa Valley.	Between 0.2 and 1.0 mm/year. Recurrence interval unknown.	M5.8, 1891 August 2014	6.5 6.0
San Andreas	33 miles west – The San Andreas fault zone extends 700 miles from the Gulf of California to the Mendocino.	Between 16 and 25 mm/year. Recurrence interval is approximately 227 years.	M7.1, 1989 M8.25, 1906 M7.0, 1838 Many <M6	7.9

Notes:

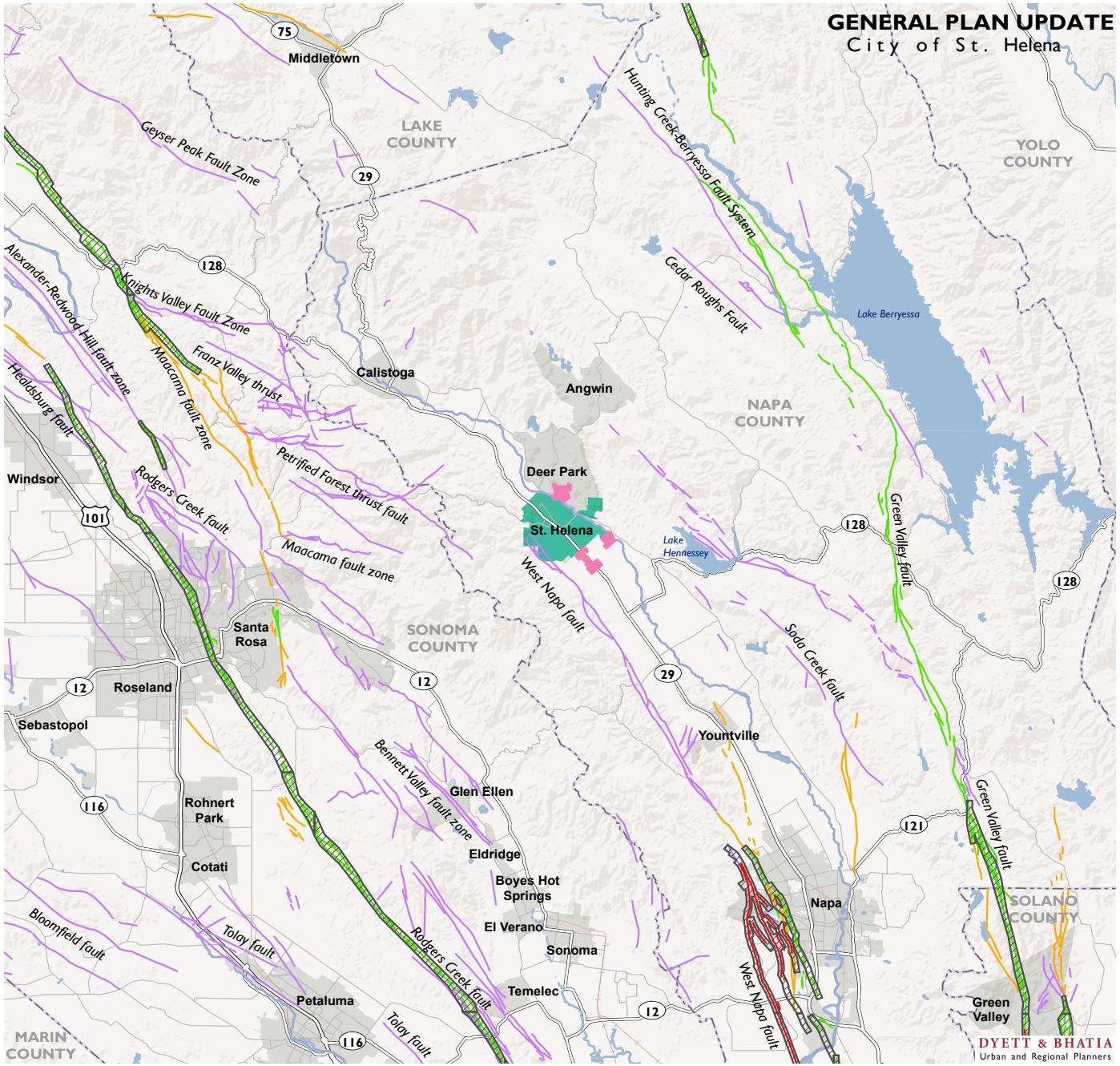
1. Slip Rate refers to the relative movement across the fault zone by opposing blocks, in millimeters (mm) per year.
2. Recurrence Interval estimates relies on studies of past individual fault activity for time between significant events.
3. Maximum Moment Magnitude (Mw) is the strongest earthquake that is likely to be generated along a fault zone, based on the geologic character of the fault and earthquake history (CDMG,1996).

Sources: City of St. Helena, 2018; Napa County, 2018; USGS and CGS, Quarternary Fault and Fold Database for the U.S., 2006; Dyett & Bhatia, 2018

Figure 3.7-2

Active Faults

- Historic (<150 years)
- Latest Quaternary (<15,000 years)
- Late Quaternary (<130,000 years)
- Undifferentiated Quaternary (<1.6 million years)
- Alquist Priolo Fault
- Freeway/Major Highway
- Major/Minor Roads
- Railroads
- Waterbodies
- Study Areas
- City of St. Helena
- Urban Areas
- County Boundary



0 2 4 8 Miles

Data Source: City of St. Helena, 2018; Napa County, 2018; USGS and CGS, Quarternary Fault and Fold Database for the U.S., 2006; Dyett & Bhatia, 2018

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Urban and Regional Planners

Seismic and Geologic Hazards

This subsection describes the hazards associated with the geologic conditions and the potential for seismic events in the Planning Area.

Fault Rupture Damage

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active major fault trace.

Regional faults identified by the CGS are shown in Figure 3.7-2. The nearest Alquist-Priolo active or potentially active faults to the City of St. Helena are the West Napa Fault, which extends along the western edge of the Napa Valley, and the Rodgers Creek Fault, which extends from San Pablo Bay up the eastern flank of the Petaluma Valley. The related Maacama Fault has an active segment located just west of Franz Valley and extending to the northwest. The maximum expected earthquake for this fault complex is estimated to be magnitude (Mw) 7.0 (State of California Department of Conservation, 2013). Most recently, the West Napa Fault ruptured in August 2014, as described in detail above.

A number of unnamed, relatively small, older faults are located at the base of the Sonoma and Vaca mountains along the margins of the Napa Valley; however, based on available information, displacement of these faults occurred more than 10,000 years ago. The CGS has not mapped any of these as an Alquist-Priolo Earthquake Fault Zone, indicating that the CGS does not currently consider them likely to generate surface rupture. Accordingly, these faults are generally considered inactive. The fault rupture hazard for the city is considered to be low. Fault rupture hazards in the city would need to be reevaluated if future data were to suggest that such a hazard is present.

Seismic Shaking

Seismic shaking (or ground shaking) is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Magnitude is a measure of the energy released by an earthquake and is assessed by seismographs that measure the amplitude of seismic waves. Intensity is a subjective measure of the perceptible effects of seismic energy at a given point and varies with distance from the epicenter and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (see Table 3.7-3). Intensity can also be quantitatively measured using accelerometers (strong motion seismographs) that record ground acceleration at a specific location, a measure of force applied to a structure under seismic shaking. Acceleration is measured as a fraction or percentage of the acceleration under gravity (g). In addition to the Rodgers Creek, Napa, and Green Valley faults noted above, major regional faults outside the City of St. Helena but in the Coast Ranges are capable of producing ground shaking in the Planning Area.

Table 3.7-3: Modified Mercalli Scale

M^1	Category	Definition
	I	Not felt except by a very few under especially favorable circumstances.
3	II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
	III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
4	IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
	V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
5	VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
6	VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
		Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts.
	VIII	Changes in well water. Persons driving motor cars disturbed.
7	IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
8	X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
	XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
	XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Notes:
1. Richter Magnitude correlation.

Source: CGS, 2002

Peak Acceleration

The State of California has made estimates of the peak ground acceleration for the area based on probabilistic models that account for multiple seismic sources. Under these models, consideration of the probability of expected seismic events is incorporated into the determination of the level of ground shaking at a particular location. The expected peak horizontal acceleration (with a 10 percent chance of being exceeded in the next 50 years) generated by any of the seismic sources potentially affecting the Planning Area is estimated by the California Geological Survey at about 0.36g[3] on the alluvium of the valley floor to 0.31g in the foothills (CGS, 2003). This level of ground shaking is a potentially significant hazard.

Liquefaction

Liquefaction is the rapid transformation of saturated, loose, fine-grained sediment to a fluid-like state because of strong ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Liquefaction can result in substantial loss of life, injury, and damage to property. In addition, liquefaction increases the hazard of fires because of explosions induced when underground gas lines break and because the breakage of water mains substantially reduces fire suppression capability.

Most of the Planning Area is underlain by materials that have very low to moderate liquefaction potential (Knudsen et al., 2000). In particular, upland areas have a very low potential for liquefaction. Liquefaction potential increases in the vicinity of the Napa River at the east side of St. Helena in Study Area 2 and locally near creeks where loose granular sediments have accumulated as a result of stream processes. The approximate boundaries and hazard levels for liquefaction risk are shown in Figure 3.7-3. The potential for liquefaction also depends on soil conditions and groundwater levels, which may fluctuate. In general, where there is any potential for liquefaction, site-specific studies are needed to determine the extent of the hazard if development were to occur in the area.

Lateral Spreading

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion unconsolidated material or more commonly by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. Lateral spreading, also known as lurching, may also occur where open banks and unsupported cut slopes provide a free face. Excavations for building foundations and other improvements, such as trenching for utilities installation, can provide opportunity for earth failures, such as lateral spreading, to occur. In addition, over-steepened banks and sudden grade changes, unless properly engineered, may also provide opportunity for lateral spreading. Ground shaking, especially when inducing liquefaction, may cause lateral spreading toward unsupported

3 Measured as a fraction or percentage of the acceleration compared to gravity (g).

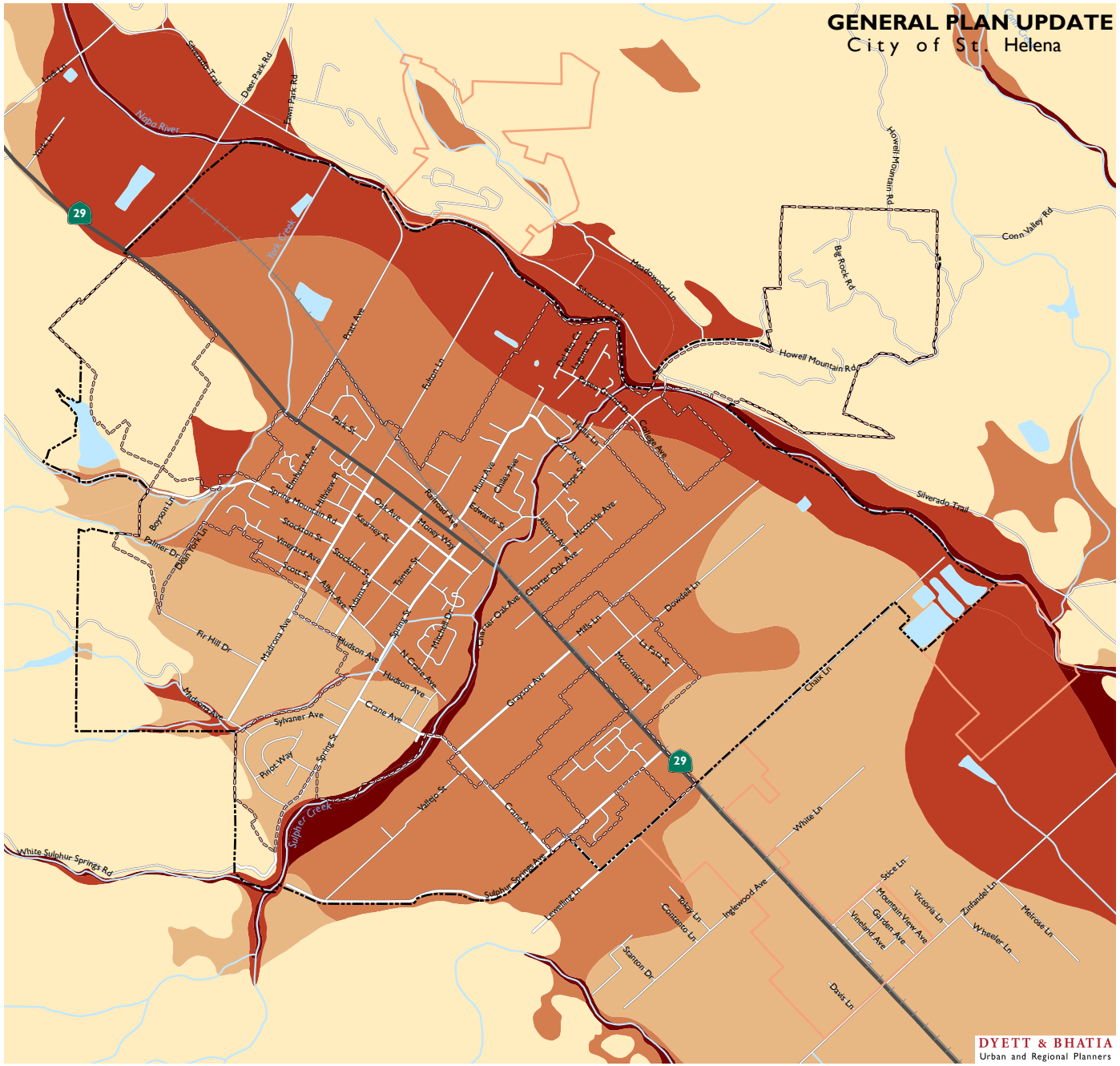
slopes. Areas most prone to lateral spreading are those that consist of fill material that has been improperly engineered, that have steep, unstable banks, and that have high groundwater tables. Damage caused by liquefaction and lateral spreading is generally most severe when liquefaction occurs within 15 to 20 feet of the ground surface. Locations within the Planning Area that are on steep hillsides, on the banks of the Napa River, or have high liquefaction susceptibility as discussed previously have the highest risk of lateral spreading. This includes the foothills on the western and eastern side of St. Helena, as well as Study Areas 1 and 2.

Figure 3.7-3

Liquefaction Susceptibility

- Very High
- High
- Medium
- Low
- Very Low
- Water

- Railroads
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Landsliding and Slope Stability

The strong ground motions that occur during earthquakes are capable of inducing landslides, generally where unstable slope conditions already exist. Slope instability is discussed below. Slope failure can occur as either rapid movement of large masses of soil ("landslide") or slow, continuous movement ("creep"). The primary factors influencing the stability of a slope are (1) the nature of the underlying soil or bedrock, (2) the geometry of the slope (height and steepness), (3) rainfall, and (4) the presence of previous landslide deposits. Landslides are commonly triggered by unusually high rainfall and the resulting soil saturation, by earthquakes, or by a combination of these conditions. The general term "landslide" may include a wide range of slope failures, including but not limited to rock falls, deep failure of slopes, earthflows, and shallow debris flows. Some landslides occur as a result of human activities, such as timber harvest, undermining of a slope, or improper drainage-water management.

The Napa Valley floor, including the majority of the City of St. Helena and Study Areas 2 and 3, is mapped as Category 1, stable areas of less than five percent slope and not underlain by landslide deposits. As shown in Figure 3.7-4, the foothills in the western part of the Planning Area are mapped as having few landslides and includes slopes of five to 15 percent, or as areas greater than 15 percent that are not underlain by landslide deposits or are underlain by bedrock units that are not susceptible to landslide (Nilsen et al., 1979). The foothills of the Vaca Mountains (the eastern rise above the Napa River, including Study Area 1) are largely areas mapped as having few existing landslide deposits, in addition to a small area of underlain by mostly existing landslide deposits.

Figure 3.7-4

Landslide Susceptibility

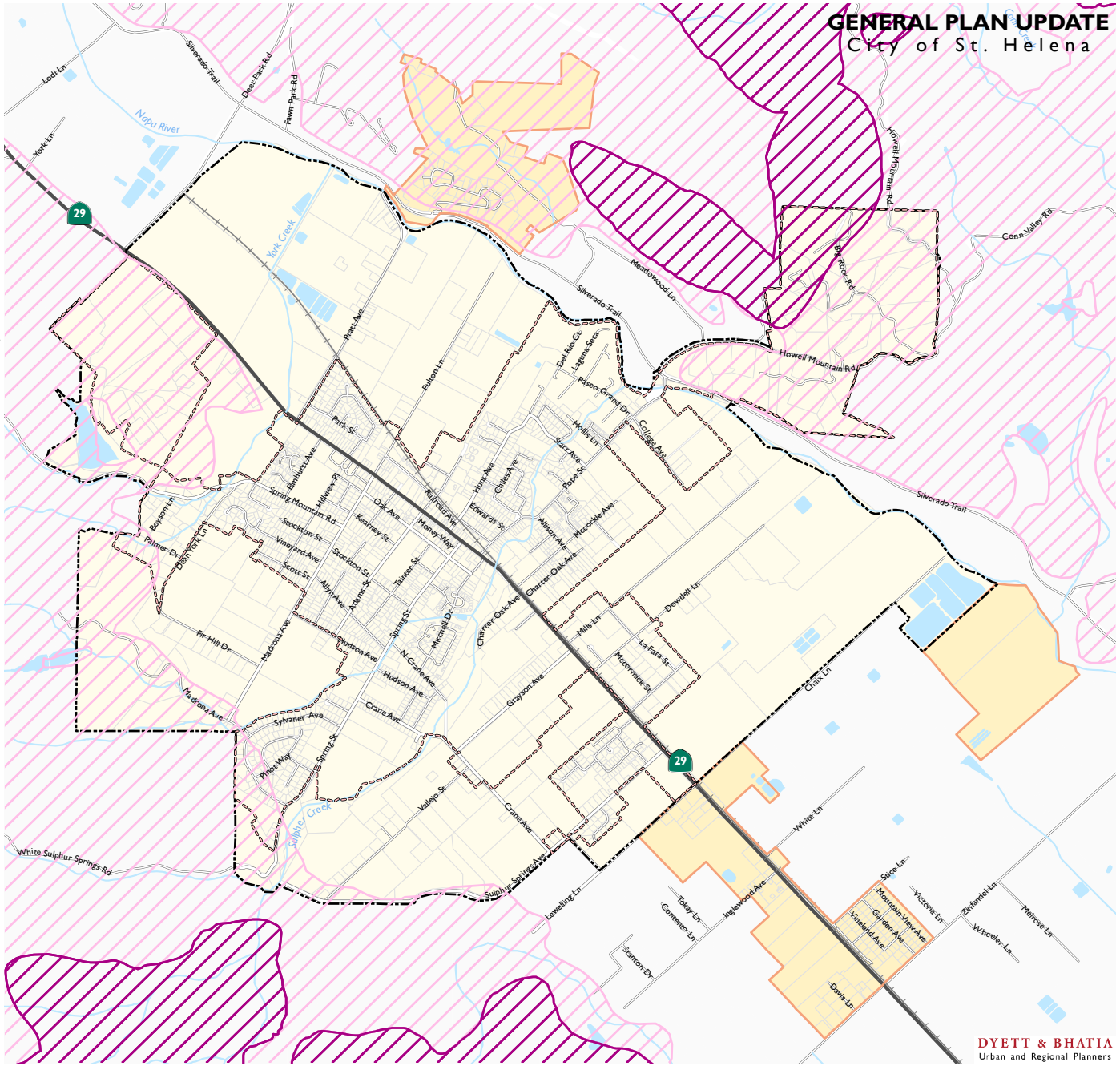
Existing Landslide Distribution

- Mostly Landslide
- Few Landslides

- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

Mostly Landslides - Consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides; defined by drawing envelopes around groups of mapped landslides.

Few Landslides - contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides; defined by drawing envelopes around areas free of mapped landslides.



Data Source: USGS, provided by Assocation of Bay Area Governments (ABAG) Resilience Program; 1997, City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Expansive Soils

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to buildings and infrastructure may occur if the potentially expansive soils were not considered in building design and during construction.

The United States Department of Agriculture National Resource Conservation Service (NRCS) analyzes the shrink-swell potential of each soil type based on its linear extensibility and clay content and categorizes it as "low," "moderate," "high," or "very high" (Rogers, Olshansky, & Rogers, 2001). Where the shrink-swell classification is moderate to very high, shrinking and swelling can cause damage to buildings, utilities, roads, and other structures and the gradual cracking, settling, and weakening of older buildings could create potential safety concerns and financial loss. The soils of the Planning Area area range from low to high shrink-swell potential. Moderate to high shrink-swell potential soils are classified as expansive soils and construction will require appropriate engineering. The majority of soils in the Planning Area are classified as "moderate" shrink-swell potential. Areas of high expansiveness occur in limited areas identified as "Maxwell Clay" and "Cole Silt Loam" on Figure 3.7-1 (United States Department of Agriculture, 2017).

Subsidence

Subsidence is the lowering of the land-surface elevation. The mechanism for subsidence is generally related to groundwater pumping and subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven. Subsidence has not been reported to be a significant problem in the upper Napa Valley where the Planning Area is located (Jones and Stokes, 2005).

Differential Settlement

Differential settlement could occur if buildings or other improvements were built on low-strength foundation materials (including imported fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time.

Portions of the Planning Area that contain loose or uncontrolled (non-engineered) fill may be susceptible to differential settlement. Regional surficial deposits mapping by the USGS does not indicate human-made fill in the vicinity of St. Helena (Helley, 1979); however, local dumping or casual fill activities may have occurred in the area and would not be mapped at the regional scale. Soil strength information is included with the individual soil descriptions by the NRCS, but interpretation of soil strength engineering implications for building projects requires site-specific soil identification and testing.

REGULATORY SETTING

This section describes the applicable federal, state, and local regulations that pertain to the Planning Area.

Federal Regulations

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law (PL) 95–124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals remain unchanged:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation;
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems;
- Improve earthquake hazards identification and risk assessment methods and their use; and
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. There are four primary NEHRP agencies:

- National Institute of Standards and Technology (NIST) of the Department of Commerce;
- National Science Foundation (NSF);
- United States Geological Survey (USGS) of the Department of the Interior; and
- Federal Emergency Management Agency (FEMA) of the Department of Homeland Security.

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

U.S. Geological Survey Landslide Hazard Program

The USGS created the Landslide Hazard Program in the mid-1970s; the primary objective of the program is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility. In Napa County, plans and programs designed for the protection of life and property are coordinated by the Napa County Office of Emergency Services.

Disaster Mitigation Act

The Disaster Mitigation Act of 2000 requires a state mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. In addition, the Disaster Mitigation Act also established a requirement for local mitigation plans.

State Regulations

State Multi-Hazard Mitigation Plan, 2013

The State Hazard Mitigation Plan (SHMP) is a federally required official statement of the state's hazard identification, vulnerability analysis, and hazard mitigation strategy (44 Code of Federal Regulations, Subpart M, Section 206.401) under the DMA2K for the State of California to receive federal funds for disaster assistance grant programs. The goal of the SHMP, prepared by the California Office of Emergency Services (OES), is to guide implementation activities to achieve the greatest reduction of vulnerability, which results in saved lives, reduced injuries, reduced property damage, and protection for the environment.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (DMA2K) (Public Law 106-390) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 to establish a Pre-Disaster Mitigation (PDM) program and new requirements for the federal post-disaster Hazard Mitigation Grant Program (HMGP). DMA2K encourages and rewards local and state pre-disaster planning. It promotes sustainability and seeks to integrate state and local planning with an overall goal of strengthening statewide hazard mitigation. This enhanced planning approach enables local, tribal, and state governments to identify specific strategies for reducing probable impacts of natural hazards such as floods, fire, and earthquakes. In order to be eligible for hazard mitigation funding after November 1, 2004, local governments are required to develop a Hazard Mitigation Plan that incorporates specific program elements of the DMA2K law. In the Bay Area, the Association of Bay Area Governments (ABAG) has adopted a multi-jurisdictional FEMA-approved 2010 Local Hazard Mitigation Plan Update, which cities and counties can adopt and use, in full or in part, in lieu of preparing all or part of a Local Hazard Mitigation Plan themselves (ABAG, 2010). The City of St. Helena has not adopted ABAG's multi-jurisdictional Plan but has participated in the Napa County Operational Area Hazard Management Plan.

Alquist-Priolo Earthquake Fault Zoning Act (1972)

The Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA) was passed in December 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The A-PEFZA's main purpose is to prevent the construction of buildings used for human occupancy across the surface trace of active faults. The A-PEFZA only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. (As discussed below, the Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.)

The A-PEFZA requires the State Geologist to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. Projects include all land divisions and the development of most structures for human occupancy. Before a project can be permitted, cities and counties must require a geologic investigation of the project site to demonstrate that proposed buildings will not be constructed across active faults. The evaluation of a specific site and written report must be prepared by a licensed geologist. If an active fault is found, any structure for human occupancy must be set back a minimum of 50 feet from the fault trace as the area within 50 feet of such active faults is presumed to be underlain by active branches of that fault unless proven otherwise by an appropriate geologic investigation and report. Alquist-Priolo Earthquake Fault Zones within the Planning Area are shown on Figure 3.7-2.

Seismic Hazards Mapping Act, California Public Resources Code Sections 2690–2699.6

In 1990, following the 1989 Loma Prieta earthquake, the California Legislature enacted the Seismic Hazards Mapping Act (SHMA) to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other seismic hazards. The SHMA established a statewide mapping program to identify areas subject to violent shaking and ground failure. The program is intended to assist cities and counties in protecting public health and safety. The SHMA requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the CGS is mapping SHMA Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides – primarily the San Francisco Bay Area and Los Angeles basin. At the time of the preparation of this Draft EIR, the City of St. Helena had not yet been mapped in conformance with the SHMA, and CGS has not indicated a schedule for completion of the study.

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California Code of Regulations Title 24). Where no other building codes apply, Chapter 29 of the CBC regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the Federal Uniform Building Code (FUBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The FUBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The State earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires an evaluation of seismic design that falls into Categories A–F (where F requires the most earthquake-resistant design) for structures designed for a project site. The CBC philosophy focuses on "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected

to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

California Department of Transportation (Caltrans) Standards

Jurisdiction of the California Department of Transportation (Caltrans) includes State and interstate routes within California, including State Route 29 which runs through St. Helena. Any work within the right-of-way of a federal or State transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way. Caltrans standards incorporate the CBC and contain numerous rules and regulations to protect the public from seismic hazards such as surface fault rupture and ground shaking. In addition, Caltrans standards require that projects be constructed to minimize potential hazards associated with cut and fill operations, grading, slope instability, and expansive or corrosive soils, as described in the Caltrans Highway Design Manual (HDM).

National Pollution Discharge Elimination System Permits

In California, the State Water Resources Control Board (SWRCB) and its Regional Water Quality Control Board (RWQCB) administer the National Pollution Discharge Elimination System (NPDES) program. The NPDES permit system was established as part of the Federal Clean Water Act to regulate both point source discharges and non-point source discharges to surface water of the United States, including the discharge of soils eroded from construction sites.

The NPDES program consists of characterizing receiving water quality, identifying harmful constituents (including siltation), targeting potential sources of pollutants (including excavation and grading operations), and implementing a comprehensive stormwater management program. Construction and industrial activities typically are regulated under statewide general permits that

are issued by the SWRCB. Additionally, the SWRCB issues Water Discharge Requirements that also serve as NPDES permits under the authority delegated to the RWQCBs, under the Clean Water Act. See Section 3.9 of this EIR, "Hydrology and Water Quality," for more information about the NPDES.

Local Regulations

Napa County Operational Area Hazard Management Plan (2013)

The City of St. Helena participated in the Napa County Operational Area Hazard Management Plan, which was adopted in 2013 and satisfies the requirements of the DMA2K. The plan includes a risk assessment that resulted in the profiling of hazards that pose risk to Napa County, assessment of the County's vulnerability to those hazards, and examined the capabilities in place to mitigate them. Vulnerabilities identified, profiled, and analyzed in this plan include flooding, earthquakes, and wildland/urban interface fires. The plan also identifies goals for reducing risks from hazards. Objectives of the plan are to:

- Protect life and property;
- Ensure emergency services;
- Increase public awareness and understanding of hazard mitigation;
- Protect critical facilities properties, infrastructure and other community assets from the impacts of hazards; and
- Continue to strengthen communication and build on the collaborative success already achieved.

In addition to county-wide risk assessment, the plan includes city-specific risk assessments. Information for the City of St. Helena is in Appendix E of the plan. Appendix A details the Napa County Operational Area, which includes the St. Helena SOI and three study areas analyzed under the General Plan and this EIR.

Napa County General Plan

Napa County has jurisdiction over the three unincorporated study areas analyzed in the Proposed Plan. The Conservation and Safety Elements of the Napa County General Plan includes measures to reduce erosion, risks due to seismic activity, landslides, and other issues related to geology, soils, and seismicity. The Conservation Element includes policies and actions specific to reducing the loss of topsoil and reduction of erosion on agricultural lands, which is the predominant land use designated within the three study areas per the Napa County General Plan.

St. Helena Municipal Code

Chapter 13.32 Stormwater and Runoff Pollution Control

Chapter 13.32 of the St. Helena Municipal Code aims to protect the health, safety, and general welfare of city of St. Helena residents by protecting water resources, improving water quality, and protecting habitats through pollution reduction, erosion prevention, and stormwater management. This chapter defines "Best Management Practices for Ground Disturbing Activities" that reduce erosion, sedimentation, and pollution. This chapter also regulates when an Erosion

and Sedimentation Control Plan and/or NPDES permit is required and how enforcement is carried out.

Title 15 Buildings and Construction

Title 15 of the St. Helena Municipal Code adopts the California Building Code (CBC) of the state of California in its entirety excepting additions, revisions, and omissions listed in Section 15.08.020. As discussed above, the CBC regulates seismic design, the excavation of foundations and retaining walls, analysis of slope instability, requirements for drainage and grading, and other aspects of building design and construction that relate to geology, soils, and seismicity.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact related to geology, soils, or seismic hazards would occur if the proposed Plan would:

Criterion 1: **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

- **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault,**
- **Strong seismic ground shaking,**
- **Seismic-related ground failure, including liquefaction, or**
- **Landslides.**

Criterion 2: **Result in substantial soil erosion or topsoil loss;**

Criterion 3: **Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;**

Criterion 4: **Be located on expansive soil, as defined in Section 1803.5.3, Expansive Soil, of the California Building Standards Code (2013), creating substantial risks to life or property; or**

Criterion 5: **Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water.**

METHODOLOGY AND ASSUMPTIONS

This evaluation of geologic, soils, and seismic hazard conditions was completed using published geologic, soils, and seismic maps and studies from U.S. Geological Survey (USGS), California Geological Survey (CGS), and the Association of Bay Area Governments (ABAG). In order to reduce or mitigate potential hazards from earthquakes or other local geologic hazards,

implementation of the Proposed Plan would ensure that development will continue to be completed in compliance with local and State regulations. These regulations include the CBC, the Seismic Hazard Mapping Act, and the City of St. Helena Municipal Code. Policies and implementing actions developed for the Proposed Plan include continued conformance with these applicable local and State building regulations.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to geology, soils, and seismicity in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to geology, soils, and seismicity in the study areas except for the potential impacts from the implementation of policies and actions related to municipal sewer system connections discussed below. Cumulative impacts related to geology, soils, and seismicity are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Public Facilities and Services Element

- ***PF2.1*** Ensure adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth, taking into account the City's Growth Management System, the Regional Housing Needs Allocation, and the needs of non-residential users.
- ***PF2.2*** Require the extension of the City sewer to areas that are dependent upon septic systems prior to approval of future growth in these areas.
- ***PF2.3*** Reduce pumping costs and increase plant capacity by mitigating sewer system infiltration problems and explore alternate energy sources.
- ***PF2.4*** Increase sewer collection system efficiency by ensuring proper maintenance of sewer pipes.
- ***PF3.4*** Consider efforts to prevent risk to structures and property along Sulphur Creek.

Public Health, Safety, and Noise Element

- ***PS3.1*** Minimize risk of injury, loss of life, and property damage from seismically-induced and other known geologic hazards.
- ***PS3.2*** Restrict the intensity of development and the level of landform alteration in the hillside areas in order to minimize the potential for slope failure.
- ***PS3.3*** The required soils and geotechnical reports for new development shall include geotechnical analysis for construction in areas with potential geological hazards and/or for purposes of environmental analysis. The analysis shall investigate all potential geo-hazard issues for the site where there is substantial evidence of a potential risk.
- ***PS3.4*** Geologic reports for new development shall describe hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, an engineer's or

geologist's certification shall be required stating that risks have been mitigated to an acceptable level.

- ***PS3.A*** Require a soils and geologic report to be submitted for new construction prior to the issuance of grading and building permits and the submission of final maps.
- ***PS3.B*** Prohibit any development—including any land alteration, grading for roads, and structural development—in areas of slope instability or other geologic concerns until mitigating measures are taken to limit potential damage to levels of acceptable risk.
- ***PS3.C*** Require prompt re-vegetation of development areas on slopes prone to instability. Use native and drought-tolerant plant species for landscaping on slopes where excess watering might induce landslides and/or erosion.

IMPACTS

Impact 3.7-1 Implementation of the Proposed Plan would not expose residents, visitors and employees, as well as public and private structures, to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides. *(Less than Significant)*

The Proposed Plan could result in increased development, population, and/or other physical changes in the City of St. Helena that could involve geological or seismic hazards (geohazards). Implementation of the Proposed Plan could therefore result in additional people and structures being exposed to geohazards, including fault rupture, ground shaking, liquefaction, and seismically-induced landslides. Some of these geohazards, particularly those related to ground shaking, could result in injuries and/or fatalities; all of the geohazards discussed below could result in damage to structures and property.

Fault Rupture

For the Proposed Plan, a significant impact due to fault rupture could occur if new structures were constructed within a designated Alquist-Priolo Earthquake Fault Zone. However, there are no designated Alquist-Priolo Fault Zones in the Planning Area (California Geological Survey, 2010) and there are no faults zoned under the Alquist-Priolo Earthquake Fault Zoning Act present within the Planning Area. The Alquist-Priolo Earthquake Fault Zones nearest to the Planning Area are associated with the West Napa Fault, approximately 13 miles to the south, Rodger's Creek, approximately 13 miles to the west. Although there are no mapped Alquist-Priolo faults within St. Helena, the significance criteria specify that faults be evaluated as indicated under the findings of the State Geologist or "as based on other substantial evidence of a known fault."

Although there are no mapped Alquist-Priolo Earthquake Fault Zones within the Planning Area, the West Napa fault does extend into the southwestern border of St. Helena. This portion of the West Napa fault is classified as an Undifferentiated Quaternary fault, which means it has been active in the last 130,000 to 1.6 million years.

The Proposed Plan includes policies and implementing actions that reduce impacts due to fault rupture. Policy PS3.1 aims to minimize the risk of injury, loss of life, and property damage from

seismically-induced and other geologic hazards. Policies PS3.3 and PS3.4 and implementing actions PS3.A, PS3.D, and PS3.E require and enforce soil and geologic reports, as well as mitigation, if necessary, for new development.

Due to the lack of any Alquist-Priolo Fault Zones within the Planning Area and policies and implementing actions included in the Proposed Plan, impacts due to fault rupture would be less than significant.

Ground Shaking

A significant impact due to ground shaking could occur if implementation of the Proposed Pan led to construction in an area that would experience ground shaking that could cause damage or harm to buildings or people. Generally speaking, fault activity has the potential to result in ground shaking, which can be of varying intensity depending the magnitude of the event, the epicenter distance, the response of geologic materials, and the design and construction quality of structures. Ground shaking tends to be more severe in softer sediments such as alluvial deposits than in bedrock materials, because in alluvial deposits surface waves can be amplified causing a longer duration of ground shaking. Areas where bedrock is exposed or located at relatively shallow depth tend to experience surface waves from an earthquake as more of a sharp jolt, compared to other areas.

Due to the distances to major regional faults, the Planning Area is subject to relatively low risk from violent seismic shaking. Nonetheless, active local faults like the Rodgers Creek, Maacama, Hunting Creek, or West Napa faults may result in significant shaking in St. Helena. Risks due to seismic ground shaking, in order to minimize damage, are legislated for structures intended for human habitation by the Seismic Hazards Mapping Act. Additionally, development occurring under the Proposed Plan would be required to conform to the current seismic design provisions of the most current version of the CBC. The CBC contains the latest seismic safety requirements to resist ground shaking through modern construction techniques, which are periodically updated to reflect the most recent seismic research.

Policy PS3.1 aims to minimize the risk of injury, loss of life, and property damage from seismically-induced and other geologic hazards, including ground shaking. Policies PS3.3 and PS3.4 and implementing actions PS3.A, PS3.D, and PS3.E require and enforce soil and geologic reports, as well as mitigation, if necessary, for new development.

Compliance with existing requirements, as well as policies and implementing actions within the Proposed Plan, would reduce potential impacts from ground shaking to a less than significant level.

Liquefaction

A significant impact due to liquefaction could occur if implementation of the Proposed Plan would result in construction in areas of elevated liquefaction risk. As shown in Figure 3.10-3, the majority of the Planning Area is prone to some level of liquefaction hazard. Most of the developed land within the city is subject to medium liquefaction hazards. The most at-risk portions of the Planning Area are in proximity to the Napa River, along the city's eastern border, including Study Area 1, and along Sulphur Creek. Very high or high susceptibility to liquefaction is common for soils that are often saturated or characteristic of wetlands. The majority of these high-risk areas would be

preserved as open space in the Proposed Plan and would not be developed with buildings or roadways. However, along Sulphur Creek, closer to downtown, a portion of the very high susceptibility areas is designated as industrial, which could result in exposure to geologic hazards due to liquefaction.

Risks due to seismic induced liquefaction are legislated for structures intended for human habitation by the Seismic Hazards Mapping Act. Similarly, Caltrans standards govern risk management for roadways in California. Damage from earthquake-induced ground failure associated with liquefaction could be high in buildings or roadways constructed on improperly engineered fills or saturated alluvial sediments that have not received adequate compaction or treatment in accordance with current building code or Caltrans standards.

In areas of liquefaction risk where buildings or roadways would be constructed, impacts from ground failure resulting from liquefaction would be addressed through site-specific geotechnical studies prepared in accordance with CBC requirements or Caltrans standards and standard industry practices, as required in policies PS3.3 and PS3.4, as well as implementing actions PS3.A and PS3.E within the Proposed Plan Policy PS3.2 and Implementing Action PS3.B prohibit development in areas with high soil and slope instability.

Conformance with listed regulatory requirements and policies and implementing actions within the Proposed Plan would reduce potential impacts related to ground-failure resulting from liquefaction to a less than significant level.

Seismically-Induced Landslides

Implementation of the Proposed Plan could have a significant impact due to seismically-induced landslides if new development were to be located in areas with high landslide risk. Landslides may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as steep slopes or banks, slanted vegetation, and transverse ridges. Landslide-susceptible areas are characterized by steep slopes and downslope creep of surface materials. While the majority of land within the Planning Area is relatively stable and flat, with no existing landslide deposits, both the western and eastern portions of the Planning Area are underlain with few existing landslide deposits. A small section of the foothills east of the Planning Area is mostly underlain with existing landslide deposits (see Figure 3.10-4). Most of this area is designated as parks, open space, woodlands, or other natural areas under the Proposed Plan. Therefore, impacts on people and property from seismically-induced landslides would be minimal.

The Seismic Hazards Mapping Act regulates construction for structures intended for human habitation within areas that have a risk of experiencing seismically-induced landslides. Similarly, Caltrans standards govern risk management for roadways in California. The potential for the development of future structures or roadways within the City of St. Helena to exacerbate existing landslide hazards would be addressed through site-specific geotechnical studies prepared in accordance with CBC requirements or Caltrans standards, respectively, as well as standard industry practices. These regulations would specifically address landslide hazards.

Within the Proposed Plan, Policy PS3.2 and Implementing Action PS3.B prohibit development in areas with high soil and slope instability, which would reduce the risk of landslides. Implementing

Action PS3.C requires prompt re-vegetation of areas on slopes to reduce instability. Policies PS3.3 and PS3.4, as well as implementing actions PS3.A and PS3.E require geologic and soil survey reports for new development, as well as mitigating measures, if necessary to reduce risks due to geologic hazards, such as landslides.

Compliance with CBC requirements or Caltrans standards, adherence to standard industry practices, and policies and implementing actions within the Proposed Plan would reduce adverse landslide impacts on people and property related to proposed changes from implementation of the Proposed Plan to a less than significant level.

Mitigation Measures

None required.

Impact 3.7-2 Implementation of the Proposed Plan would not result in substantial soil erosion or the loss of topsoil. *(Less than Significant)*

Development associated with implementation of the Proposed Plan would likely include earthwork activities that could expose soils to the effects of erosion or loss of topsoil. Once disturbed, through the removal of vegetation, asphalt, or an entire structure, exposed and stockpiled soils could be affected by wind and water. Generally, according to St. Helena Municipal Code Chapter 15.12 California Building Code Adopted, no grading shall be performed within the city without first having obtained a permit from the Building Official with approval from the City Engineer, except for minor grading activities or special project types outlined in the Code, which do not require a grading permit. Compliance with the St. Helena Municipal Code would minimize impacts from erosion.

In addition, construction that disturbs more than one acre would be subject to compliance with a NPDES permit. The NPDES permit requires implementation of best management practices (BMPs) and a Storm Water Pollution Prevention Plan (SWPPP). BMPs that are required under a SWPPP include erosion prevention measures that have proven effective in limiting soil erosion and loss of topsoil. Enforcement of NPDES requirements is outlined in St. Helena Municipal Code Chapter 13.32 Stormwater Runoff and Pollution Control.

Proposed Plan policies PS3.3 and PS3.4 and Implementing Action PS3.A require soils and geotechnical reports for new development, as well as mitigation measures to reduce risks.

Once construction is complete and exposed areas are re-vegetated per policies in the Proposed Plan or covered by buildings, asphalt, or concrete, the erosion hazard is substantially eliminated or reduced. Compliance with applicable codes and regulations would reduce the risk of substantial soil erosion or topsoil loss resulting from implementation of the Proposed Plan to a less than significant level.

Mitigation Measures

None required.

Impact 3.7-3 Implementation of the Proposed Plan would not result in development located on a geologic unit or soil that is unstable, or

that would become unstable as a result of the Plan, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. *(Less than Significant)*

If implementation of the Proposed Plan promoted development located on an unstable geologic unit or soils that resulted in landslide, lateral spreading, subsidence, or liquefaction, it could result in a significant impact. Areas within the St. Helena with underlying materials that include undocumented fills, soft compressible deposits, or loose debris could be inadequate to support development, especially multi-story buildings. Structures, including residential units and commercial buildings, and roadways could be damaged as a result of settlement where structures or roadways are underlain by materials of varying engineering characteristics. Construction of new structures or roadways in the vicinity of relatively steep slopes could provide additional loading, causing landslides or slope failure from unstable soils or geologic units. Slope failure could also occur through earthwork and grading related activities.

As discussed above, while the majority of land within the Planning Area is relatively flat, with few landslide susceptible areas (See Figure 3.10-4), most of these areas are designated as parks, open space, woodlands, agriculture, or other areas of no or low-intensity development that should not be adversely impacted by landslides.

The potential hazards of unstable soil or geologic units would be addressed through the integration of geotechnical information into the planning and design process for future projects within the city. Geotechnical investigations for specific projects within the City of St. Helena would be required to evaluate site-specific geotechnical characteristics such as subsurface soils and bedrock to assess potential hazards and recommend site preparation and design measures to address any hazards that may be present. These measures would be enforced through compliance with CBC requirements to avoid or reduce hazards relating to unstable soils and slope failure. The City of St. Helena has adopted the CBC in Municipal Code Title 15.

Furthermore, policies and implementing actions in the Proposed Plan would prevent development on areas with unstable soils or geologic units. Specifically, Policy PF3.4 aims to reduce risk to structures along Sulphur Creek, where the most expansive soils are located, and Policy PS3.2 restricts development in hillside areas. Policies PS3.3 and PS3.4 and Implementing Action PS3.A require soils and geologic reports for new development, which is in conformance with the requirements of the CBC. Implementing Action PS3.B prohibits developing areas of slope instability until mitigation measures are taken, and Implementing Action PS3.C requires prompt re-vegetation of slopes prone to instability.

Therefore, due to compliance with standard industry practices, State requirements, and policies and implementing actions, impacts related to landslides, lateral spreading, subsidence, liquefaction, or collapse resulting from implementation of the Proposed Plan would be less than significant.

Mitigation Measures

None required.

Impact 3.7-4 Implementation of the Proposed Plan would not locate structures on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. (*Less than Significant*)

Some improvements associated with implementation of the Proposed Plan could be located on geologic units or soils that are unstable, including expansive soils. As described above, the Planning Area consists of several soil types, including Bale, Cole, Cortina, and Pleasanton loams soils, which are moderately expansive. Soils that exhibit expansive properties when exposed to varying moisture content over time could result in damage to foundations, walls, or other improvements. The Planning Area consists mostly of soils which are moderately corrosive to concrete and moderately to highly corrosive to steel. Corrosive soils can constrain foundation and utility construction design. The majority of existing development within the City of St. Helena is located on the valley floor on moderately expansive soils.

Development in areas with expansive soils would require compliance with State and local building codes. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction. The City of St. Helena has adopted the CBC in Municipal Code Title 15.

In addition to CBC requirements, Implementing Action PS3.A specifies that the City of St. Helena "require a soils and geologic report to be submitted for new construction prior to the issuance of grading and building permits and the submission of final maps." Implementing Action PS3.B would prohibit or limit development in areas of slope instability unless adequate measures are taken to limit potential damage to levels of acceptable risk.

Compliance with existing regulations and implementation of Proposed Plan policies and implementing actions would ensure that any impact is reduced to a less than significant level.

Mitigation Measures

None required.

Impact 3.7-5 Implementation of the Proposed Plan would not locate structures on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. (*Less than Significant*)

A significant impact could occur if new development under the Proposed Plan would locate structures in areas without connection to St. Helena's sanitary sewer system and on soils incapable of adequately supporting the use of septic tanks. The majority of existing development within the City of St. Helena is connected to the sanitary sewer system and does not rely on septic systems. Implementation of the Proposed Plan would not result in development in areas having soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal

systems. Additionally, the majority of new development resulting from implementation of the Proposed Plan would be in central areas served by the current sewer system.

Certain areas, including lands designated Woodland and Watershed and the three study areas, are outside the area served by the City of St. Helena's sanitary sewer system and would continue to be served by on-site wastewater systems. Applications for new development in areas not served by the City of St. Helena's sanitary sewer system would be required to apply to the Napa County Health and Human Services Department for installation of an on-site treatment system. St. Helena General Plan Policy PF2.2 would provide that nearly all new units (except those few previously mentioned) must connect to the City wastewater system and would limit system growth to areas within the St. Helena Urban Limit Line. The Proposed Plan does not propose or facilitate new development within the study areas.

The Napa County Health and Human Services Department application and review process includes engineering and testing requirements to ensure that appropriate soils are present and/or required specially designed systems are proposed to mitigate site constraints prior to system approval (County of Napa, 2010). For those areas within St. Helena served by the City system, Proposed Plan policies PF2.1 through PF2.4 would "ensure adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth," as well as address system extension and capacity improvements to the system.

Thus, existing regulations and policies and implementing actions included in the Proposed Plan would reduce impacts related to septic systems to a less than significant level.

Mitigation Measures

None required

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3.8 Hazards and Hazardous Materials

This section of the EIR presents a general discussion of hazardous materials and public health and safety impacts within the Planning Area. This section assesses potential impacts from future development under the Proposed Plan as related to hazards and hazardous materials, including those associated with the use, transportation, or disposal of hazardous materials; hazardous materials use in the vicinity of a school; hazardous materials sites; airport hazards; emergency response planning; and wildland fire hazards. For discussion of geologic and seismic hazards, see Section 3.6: Geology, Soils, and Seismicity. For discussion of hydrologic and flood hazards, see Section 3.9: Hydrology and Water Quality.

Responses to the NOP regarding topics addressed in this section included the following:

- A member of the public commented on access issues potentially affecting emergency response within the City of St. Helena. They stated that the only crossing in St. Helena over the Napa River exists at the Pope Street Bridge. During peak times, it may not be passable by emergency services due to traffic congestion. A second member of the public also commented on emergency service access issues regarding sections of town that are only accessible via State Route 29. This EIR addresses these topics by examining the emergency access throughout the Planning Area, as well as existing and proposed policies and procedures, to determine if additional measures are needed to adequately provide emergency response given the growth projected at build out. Additionally, the only crossing being at the Pope Street Bridge is a temporary condition. The Pratt Street Bridge is also a crossing of the Napa River within St. Helena; however, it is currently closed due to a landslide. The County has not provided a schedule of the planned opening of the bridge.

Environmental Setting

PHYSICAL SETTING

Hazardous materials and wastes can result in public health hazards if improperly handled, released into the soil or groundwater, or released into the air through vapors, fumes, or dust.

Hazardous Materials

Hazardous materials are substances or a combination of substances which, because of quantity, concentration or physical, chemical, or infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible or

incapacitating irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported or disposed of. Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, Article 3 groups hazardous materials into the following four categories based on their properties: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases). Hazardous materials are commonly used in commercial, agricultural and industrial applications, as well as in residential areas to a limited extent.

Hazardous Waste

A hazardous waste is any waste that may (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed (California Health and Safety Code, Section 25141).

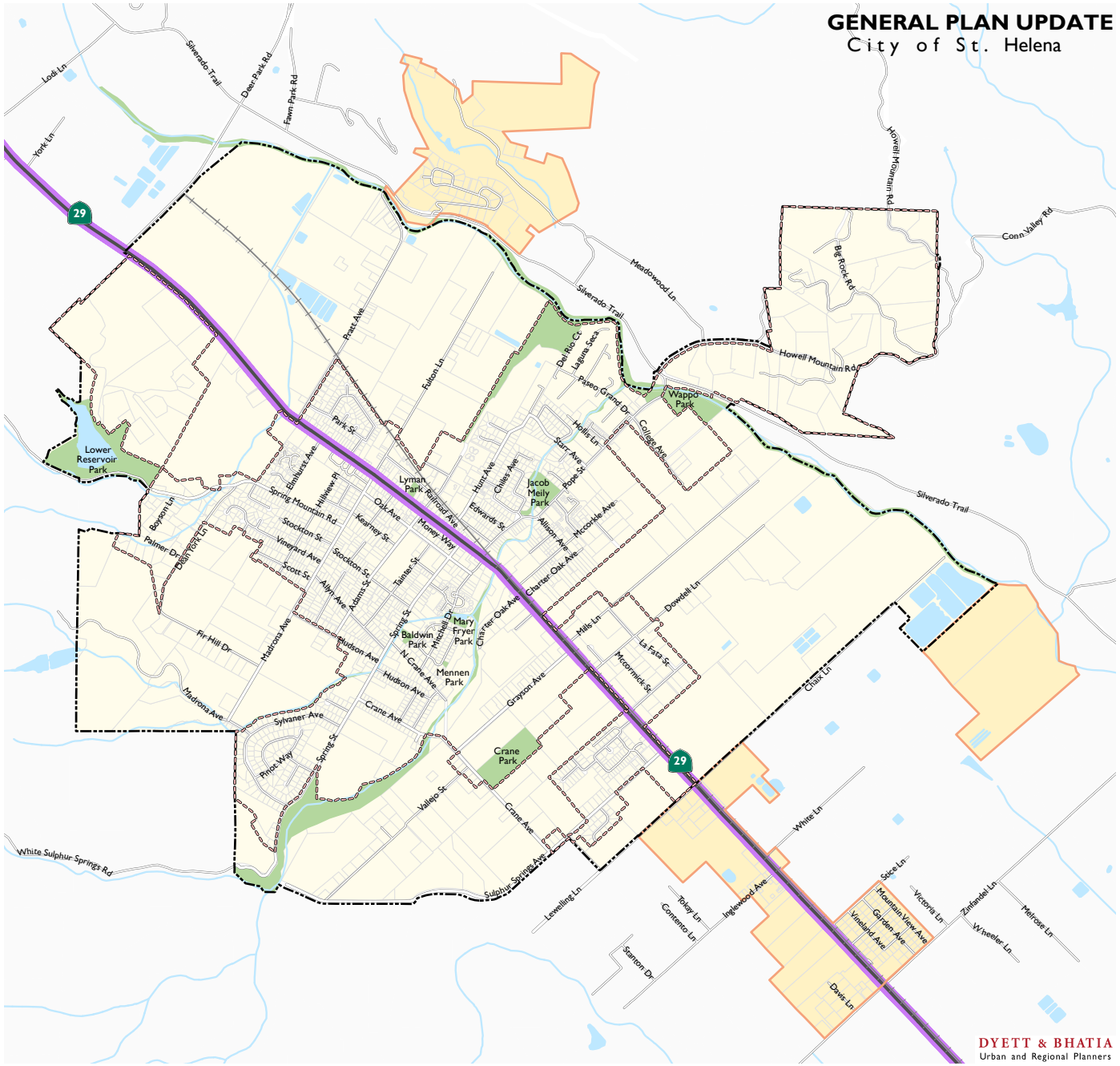
Hazardous Materials Transport

Within the Planning Area, hazardous materials may be transported by vehicle along roadways, train tracks, or through transmission lines such as pipelines. The major transportation routes within the Planning Area are State Route (SR) 29 and Silverado Trail. As seen on Figure 3.8-1, SR 29 is designated as a truck route, which could be used to transport hazardous materials. The Napa Valley Wine Train, which typically runs service for tourists through Napa Valley and runs through the City of St. Helena, occasionally runs freight service, and could be used to transport hazardous materials (Giaccio, 2018). Additionally, a PG&E gas transmission pipeline is located along the entire length of SR 29 within the Planning Area (PG&E, 2018).

Figure 3.8-1

Truck Routes

- State Truck Routes
- Highway
- Railroads
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Truck Network, Caltrans GIS Data, 2018; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Hazardous Materials Sites

Sites where hazardous chemical compounds have been released into the environment can pose threats to human and ecologic systems' health. Both historic and current activities, most often associated with industrial or commercial uses (including gas stations, car washes, etc.), may result in the release, leak, or disposal of toxic substances on or below the ground surface, where they can then contaminate soil and ground water. Disturbance of the ground through grading or excavation can result in exposure of these chemicals to the public. Improper handling of contaminated sites may result in further exposure via airborne dust, surface water runoff, or vapors.

The California Department of Toxic Substances Control (DTSC) and State of California Water Resources Control Board (SWRCB) track and identify sites with known or potential contamination and sites that may impact groundwater in accordance with Section 65962.5 of the California Public Resources Code. The list produced in accordance with this code is also known as the Cortese List.

- **EnviroStor.** The DTSC EnviroStor hazardous waste facility and cleanup sites database identifies sites that have known contamination or potentially contaminated sites requiring further investigation, and facilities permitted to treat, store, or dispose of hazardous waste. The EnviroStor database includes lists of the following site types: federal Superfund sites; State Response, including military facilities and State Superfund; voluntary cleanup; and school sites.
- **GeoTracker.** The SWRCB GeoTracker database tracks sites that impact groundwater or have the potential to impact groundwater. It includes sites that require groundwater cleanup such as Leaking Underground Storage Tanks (LUSTs), Department of Defense, and Site Cleanup Program sites; as well as permitted facilities that could impact groundwater such as operating Underground Storage Tanks (USTs), irrigated lands, oil and gas production sites, and land disposal sites.

SWRCB records identify 39 hazardous materials release sites in the Planning Area, 34 in the City of St. Helena and five in Study Area 3, of which one is undergoing remediation and three are permitted sites. As shown in Table 3.8-1, the majority of hazardous materials release sites in the Planning Area are related to LUSTs. Although current regulations requiring double-wall construction and leak monitoring equipment for USTs should reduce the number of releases in the future, many USTs installed in previous decades have failed, causing petroleum contamination in soils and groundwater. These releases are often discovered during tank removal or upgrade activities.

Typically, the most significant hazardous materials sites affecting public health are overseen by the DTSC. DTSC reports two on-going cleanup sites in the Planning Area, one within the City of St. Helena and one located in Study Area 3. A manufactured gas plant (MGP) operated on Mitchell Drive within the City of St. Helena from 1883 until 1926. In 1930, PG&E acquired the site, dismantling the MGP upon introduction of natural gas to the region in 1931. Polycyclic aromatic hydrocarbons, petroleum hydrocarbons, arsenic, and lead have been detected in subsurface investigations at the site. Groundwater cleanup of this site is nearing completion, with DTSC requiring monitoring wells to be in place for the next five years until the year 2020 (Department of Toxic Substances Control, 2018). The second cleanup site, located along SR 29 within Study Area

3, is a wood-framed structure that has operated as a food market since 1949. During renovation of the structure in 1997, a preliminary site assessment detected hazardous levels of organochlorine pesticides, including DDT, in soil in the crawlspace beneath the building (Department of Toxic Substances Control, 2018).

A shown on Table 3.8-1 and Figure 3.8-2, of the 41 total hazardous materials sites in the Planning Area, 36 are now listed as closed cases by their regulatory agency. The remaining sites include a PG&E property, three gas stations, and a commercial property.

Table 3.8-1: DTSC and SWRCB Hazardous Sites

Site Name	*Location*	*Site Type*	*Status*
SWRCB Cleanup Sites (Geotracker)			
Hall Winery	401 St. Helena Highway	Cleanup Program Site	Completed - Case Closed
1030 Fulton Lane	1030 Fulton Lane	Cleanup Program Site	Completed - Case Closed
Noble Properties	1132 Main Street	Cleanup Program Site	Completed - Case Closed
Noble Properties	1132 Main Street	Cleanup Program Site	Completed - Case Closed
632 McCorkle Redevelopment	632 McCorkle Avenue	Cleanup Program Site	Completed - Case Closed
St. Helena PG& E	1301-1302 Mitchell Drive and Oak Avenue	Cleanup Program Site	Open - Remediation
Jaeger Property	1665 Spring Mountain Rd	LUST Cleanup Site	Completed - Case Closed
Union 76	1380 Main St	LUST Cleanup Site	Completed - Case Closed
Valley Convenience Store	1108 Main St	LUST Cleanup Site	Completed - Case Closed
Pacific Bell	1240 Oak St	LUST Cleanup Site	Completed - Case Closed
St Helena City Corporation Yard	1405 Charter Oak	LUST Cleanup Site	Completed - Case Closed
St Helena Petroleum Inc	929 Main St	LUST Cleanup Site	Completed - Case Closed
Lident Corp	899 Dowdell Ln	LUST Cleanup Site	Completed - Case Closed
Beacon #3707 (Former)	800 Hwy 29	LUST Cleanup Site	Completed - Case Closed
Tripoli Market	607 Hwy 29	LUST Cleanup Site	Completed - Case Closed

Table 3.8-1: DTSC and SWRCB Hazardous Sites

Site Name	*Location*	*Site Type*	*Status*
St Helena Police Department	1480 Main St	LUST Cleanup Site	Completed - Case Closed
Private Residence	Private Residence	LUST Cleanup Site	Completed - Case Closed
Epps Chevrolet	555 Main St	LUST Cleanup Site	Completed - Case Closed
Central Valley Bldrs Supply	1100 Vintage Ave	LUST Cleanup Site	Completed - Case Closed
Markley Cove Resort	7521 Hwy 128	LUST Cleanup Site	Completed - Case Closed
Smith Harold & Son Inc	800 Crane Ave	LUST Cleanup Site	Completed - Case Closed
Chevron	1400 Main St	LUST Cleanup Site	Completed - Case Closed
St Helena Cemetery Assoc.	2461 2 Spring St	LUST Cleanup Site	Completed - Case Closed
Napa Valley Petroleum #2	1153 Main St	LUST Cleanup Site	Completed - Case Closed
Private Residence	Private Residence	LUST Cleanup Site	Completed - Case Closed
Louis M. Martini Winery	254 St Helena Hwy S	LUST Cleanup Site	Completed - Case Closed
St Helena Unified District	1401 Grayson	LUST Cleanup Site	Completed - Case Closed
Abruzzini Property	1030 Fulton Ln	LUST Cleanup Site	Completed - Case Closed
Saint Helena Plaza	1136 Main St	LUST Cleanup Site	Completed - Case Closed
Caltrans	Mitchell & Pope St	LUST Cleanup Site	Completed - Case Closed
Partridge Property	1891 Vallejo St	LUST Cleanup Site	Completed - Case Closed
Beringer Vineyards	2000 Main St	LUST Cleanup Site	Completed - Case Closed
Heublein Fine Wine Group	8215 St Helena Hwy	LUST Cleanup Site	Completed - Case Closed
Heublein Fine Wine Group	700 White Ln	LUST Cleanup Site	Completed - Case Closed
Union 76	1380 Main St	LUST Cleanup Site	Completed - Case Closed

Table 3.8-1: DTSC and SWRCB Hazardous Sites

Site Name	*Location*	*Site Type*	*Status*
St Helena Petroleum	905 Main St	LUST Cleanup Site	Completed - Case Closed
SWRCB Permitted Sites (Geotracker)			
St Helena Chevron	1400 Main St	Permitted Underground Storage Tanks	N/A
Napa Valley Petroleum-St Helena	1153 Main St	Permitted Underground Storage Tanks	N/A
VCS #5	1108 Main St	Permitted Underground Storage Tanks	N/A
DTSC Cleanup Sites (Envirostor)			
PG&E St. Helena	1301-1302 Mitchell Drive	Volunatry Cleanup	Certified/Operation & Maintenance
Crossroads Associates Property	607 S. St. Helena Highway	Voluntary Cleanup	Certified O&M - Land Use Restrictions Only

Sources: Geotracker, SWRCB, 2018; Envirostor, DTSC, 2018; City of St. Helena, 2018; Dyett & Bhatia, 2018

Figure 3.8-2

Hazardous Materials Sites

Geotracker (SWRCB)

Cleanup Sites

- Leaking Underground Tank (LUST) Cleanup Site
- Other Cleanup Site
- × Closed Site

Permitted Facilities

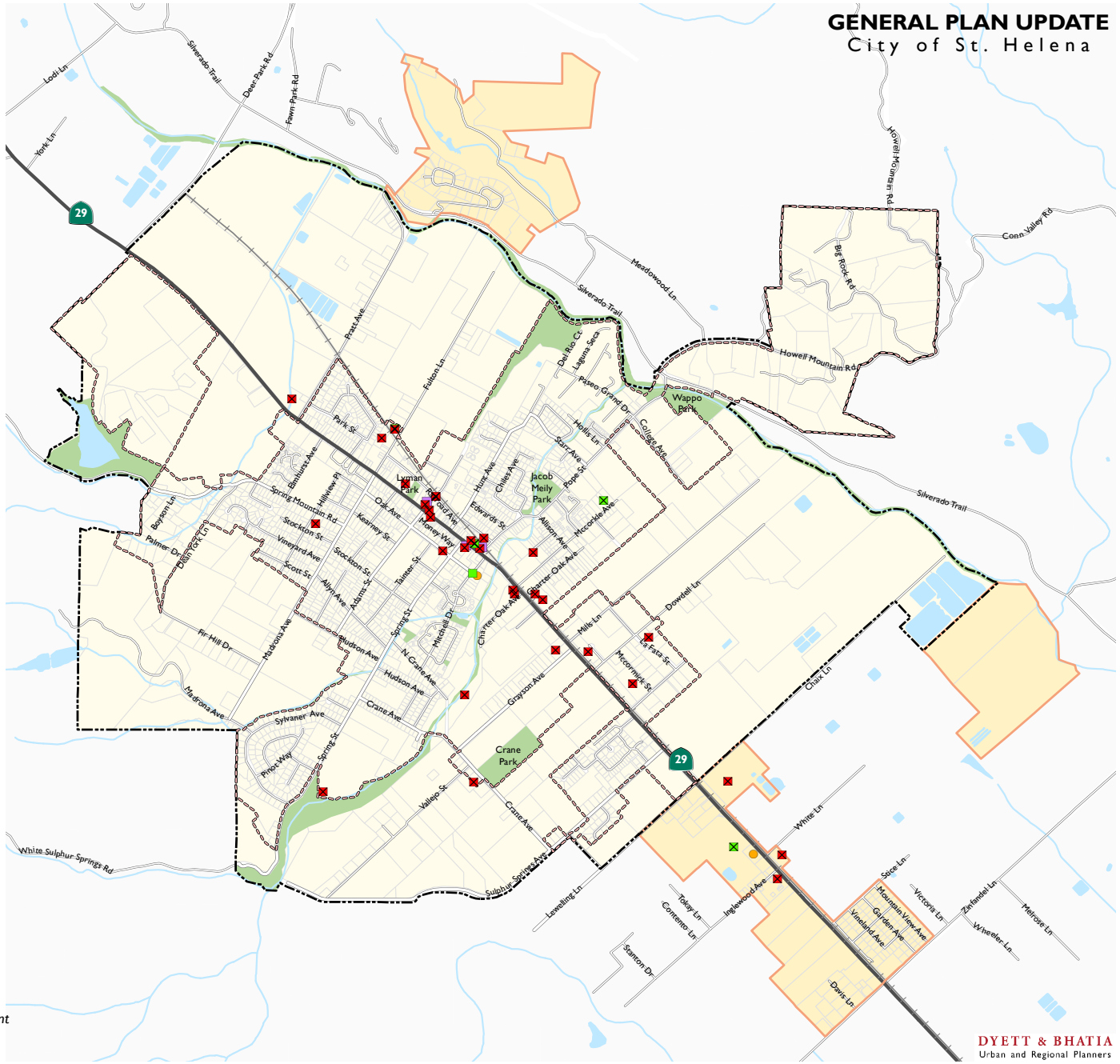
- Permitted Underground Storage Tanks (UST)

Envirostor (DTSC)

Cleanup Sites

- Volunatry Cleanup

- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Geotracker, State Water Resources Control Board (SWRCB), 2018; Envirostor, Department of Toxic Substances Control (DTSC), 2018; City of St. Helena, 2018; Dyett & Bhatia, 2018

Aerially-Deposited Lead

Aerially-deposited lead is a common hazardous materials issue in urban areas. Soils adjacent to major roadways often contain elevated concentrations of lead. The lead deposition is the result of airborne particulates and surface water runoff associated with tailpipe emissions prior to the time lead was phased out of vehicle fuels. Studies by the California Department of Transportation (Caltrans) suggest that hazardous waste levels of lead, if present, are generally found in soils within 30 feet of the edge of the pavement (Department of Toxic Substances Control, 2000).

The City of St. Helena contains several heavily-trafficked roadways, including Main Street and Silverado Trail. Properties located adjacent to roadways may contain elevated concentrations of lead in exposed surface soils, which could pose a health hazard to construction workers and users of the properties. Lead is a State-recognized carcinogen (causes cancer) and reproductive toxicant (causes birth defects or other reproductive harm) (CalEPA, 2007). Exposure of construction workers or future site occupants to lead in soil could result in adverse health effects, depending on the duration and extent of exposure.

Hazardous Materials in Building Materials

Hazardous materials, such as lead and asbestos, may be found in building materials and disturbed during demolition and renovation activities associated with development or redevelopment. Lead compounds were commonly used in interior and exterior paints until they were banned in 1978. Prior to the 1980s, building materials often contained asbestos fibers, which were used to provide strength and fire resistance until they were banned. In addition, other common items present in buildings, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats can contain hazardous materials, which may pose a health risk if not handled and disposed of properly.

Demolition of buildings has the potential to release lead particles, asbestos fibers, and/or other hazardous materials to the air where they may be inhaled by construction workers and the general public. Federal and State regulations govern the demolition of structures where lead or material containing lead is present. During demolition, lead-based paint that is securely adhering to wood or metal may be disposed of as demolition debris, which is a non-hazardous waste. Loose and peeling paint must be disposed of as a California and/or federal hazardous waste if the concentration of lead exceeds applicable waste thresholds. State and federal construction worker health and safety regulations require air monitoring and other protective measures during demolition activities where lead-based paint is present.

Federal, State, and local requirements also govern the removal of asbestos or suspected asbestos-containing materials (ACMs), including the demolition of structures where asbestos is present. All friable (crushable by hand) ACMs, or non-friable ACMs subject to damage, must be removed prior to demolition in accordance with applicable requirements, including notification to the Bay Area Air Quality Management District (BAAQMD). Friable ACM must be disposed of as an asbestos waste at an approved facility. Non-friable ACM may be disposed of as non-hazardous waste at landfills that will accept such wastes. Workers conducting asbestos abatement must be trained in accordance with State and federal Occupational Safety and Health Administration (OSHA) regulations.

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials are regulated as "universal wastes" by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed under the DTSC hazardous waste rules.

Sensitive Receptors

Some populations, such as children, the elderly, and the infirm, are more susceptible to health effects of hazardous materials than the general population. Hazardous materials use near schools, day care centers, senior housing, and hospitals must consider potential health effects to these populations, often referred to as "sensitive receptors." Construction or redevelopment on contaminated properties that could potentially generate vapors or fugitive dust containing contaminants may potentially pose a health risk to these populations. In addition, commercial businesses in proximity to sensitive receptors may have hazardous emissions or handle hazardous or acutely hazardous materials or wastes that could pose a health risk to these sensitive receptors.

To protect sensitive receptors, Section 17210 et seq. of the State Education Code, Sections 21151.2, 21151.4, and 21151.8 of the Public Resources Code require that prospective school sites be reviewed to determine that such sites are not a current or former hazardous waste disposal site, a hazardous substance release site, or the site of hazardous substance pipelines. These laws also require consultation with local hazardous materials agencies and air quality districts to ensure that no sites within one-quarter mile of a school that handle or emit hazardous substances would potentially endanger future students or workers at the prospective school site.

Pursuant to the State Education Code, all school districts receiving State funds are required to prepare a Phase I environmental assessment on prospective school sites. The Phase I assessment would detail the historical uses of the property and indicate any potential for contamination. DTSC must review this assessment and make one of the following findings: 1) that no further action is required; or 2) that concerns about contamination exist and the district must conduct a Preliminary Endangerment Assessment (PEA). The PEA process entails site sampling and the development of a detailed risk assessment of any contaminants present on the proposed school property.

Airport Hazards

The City of St. Helena does not have an airport and no public use airports or private airstrips are present within the Planning Area. The nearest public use airport is Angwin-Parrett Field, located four miles northeast of the Planning Area. The nearest private airport is the Pope Valley Airport, located seven miles northeast of the Planning Area. The nearest regional airport is the Charles M. Schulz Sonoma County Airport, 19 miles west of the Planning Area.

Emergency Response

County-wide, the Napa County Office of Emergency Services (OES) works with County departments, State agencies, and community groups to handle major disasters that affect County residents. Napa County OES provides information about emergency preparedness, response and recovery; maintains and updates county emergency plans as needed; and trains the community for

disasters. In the event of a disaster, an Emergency Operations Center (EOC) is set up and staffed with trained professionals who coordinate all communications, logistics, resources, and recovery programs. In addition to services provided by the County, the City of St. Helena has a paid on-call,[1] part-time fire department and traditional police department which would be responsible for providing safety and guidance in the event an evacuation was required.

Fire Hazards

Wildland Fires

In accordance with California Public Resource Code Sections 4201-4204 and 51175-51189, the California Department of Forestry and Fire Protection (CDF) has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), represent the risks associated with wildland fires. Under Government Code, Section 511182 areas within a very high FHSZ must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas. As shown on Figures 3.8-3, no portion of the Planning Area is classified as a very high FHSZ. However, Study Area 1 is classified as being in a moderate FHSZ. Other fire risk analysis is completed as part of CDF's Fire Threat, Fire and Resource Assessment, and is shown on Figure 3.8-4. In this analysis, the western uplands of the City of St. Helena and Study Area 1 are areas classified as having moderate to very high wildfire threat. The remainder of the Planning Area is classified as either moderate or low threat, with the more developed portions of the valley generally having a moderate risk and the undeveloped or agriculture portions as low. The City of St. Helena is classified as a Local Responsibility Area (LRA), meaning that the City and other local fire districts are responsible for fire protection services, while the study areas are part of the State Responsibility Area (SRA) since they are located within unincorporated Napa County. The City of St. Helena Fire Department provides fire protection services within the city limits and certain surrounding unincorporated areas, including the three study areas, pursuant to the Napa County mutual aid automatic aid agreement. This agreement also dictates, depending on the needs of the incident, that all fire departments in the county will respond to a call for services as requested or required. Napa County Station 26 (St. Helena) and Napa County Station 12 (Yountville) provide automatic aid on all residential and commercial structure fires in the City of St. Helena (Sorensen, 2017).

Urban Fires

In addition to wildfires, the Planning Area is also at risk of urban fires affecting structures and vegetation in areas already developed for urban and agricultural uses. Fire risk in the city is mitigated in a number of ways, including through the enforcement of updated fire codes and involvement of the County OES and City of St. Helena Fire Department in the development review process. Fire services are discussed in more detail in Section 3.12: Public Services and Recreation.

[1] A paid on call fire department is one where firefighters are paid per run and not on a salary basis.

Figure 3.8-3

Fire Hazards

Fire Hazard Severity Zones

State Responsibility Area (SRA)

- Very High
- High
- Moderate

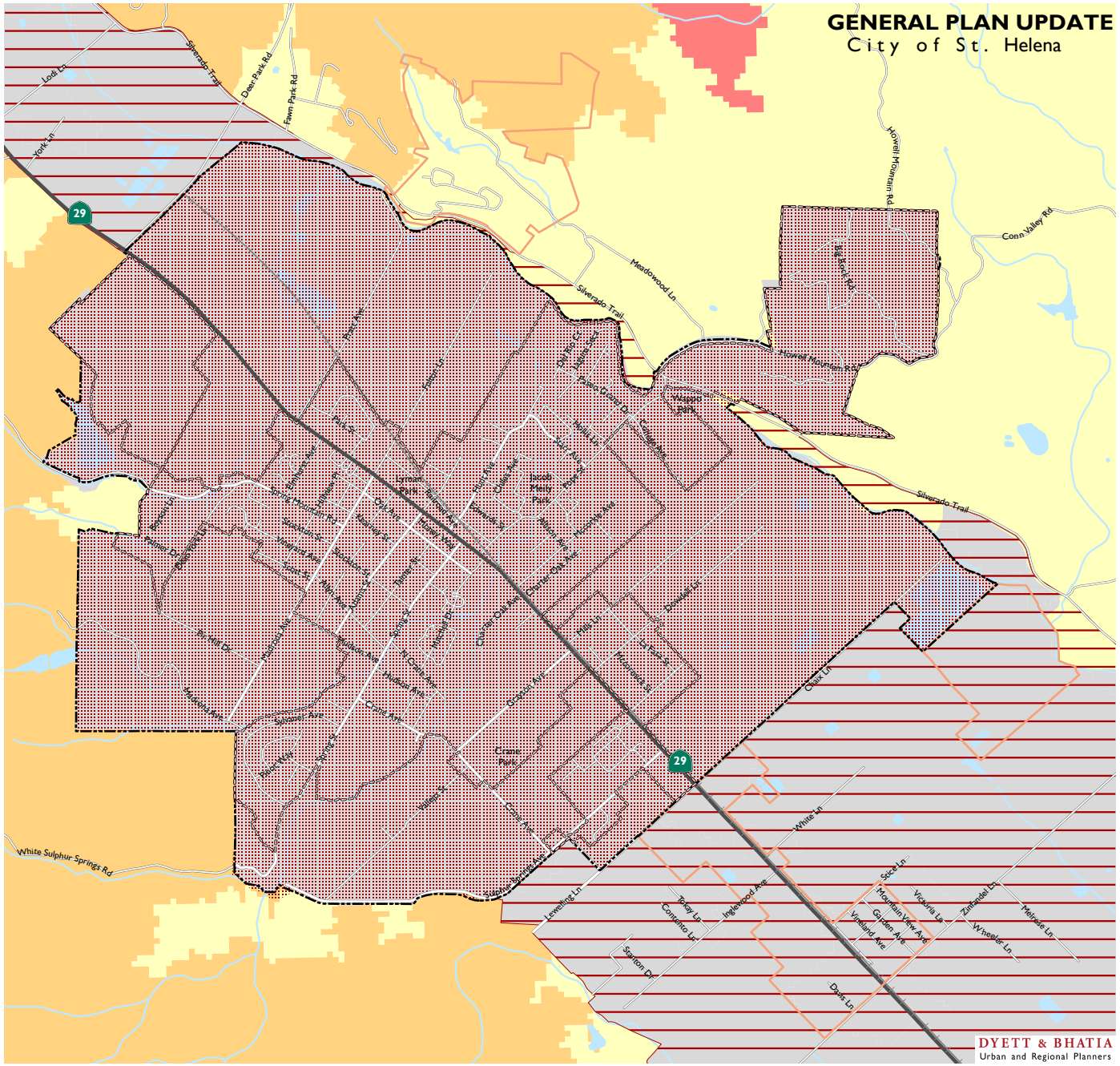
Local Responsibility Area (LRA)

- Very High
- Non-Very High

Fire Protection Responsibility

- LRA - Incorporated
- LRA - Unincorporated

- Urban Limit Line
- Study Areas
- City of St. Helena



0 1,000 2,000 4,000 Feet

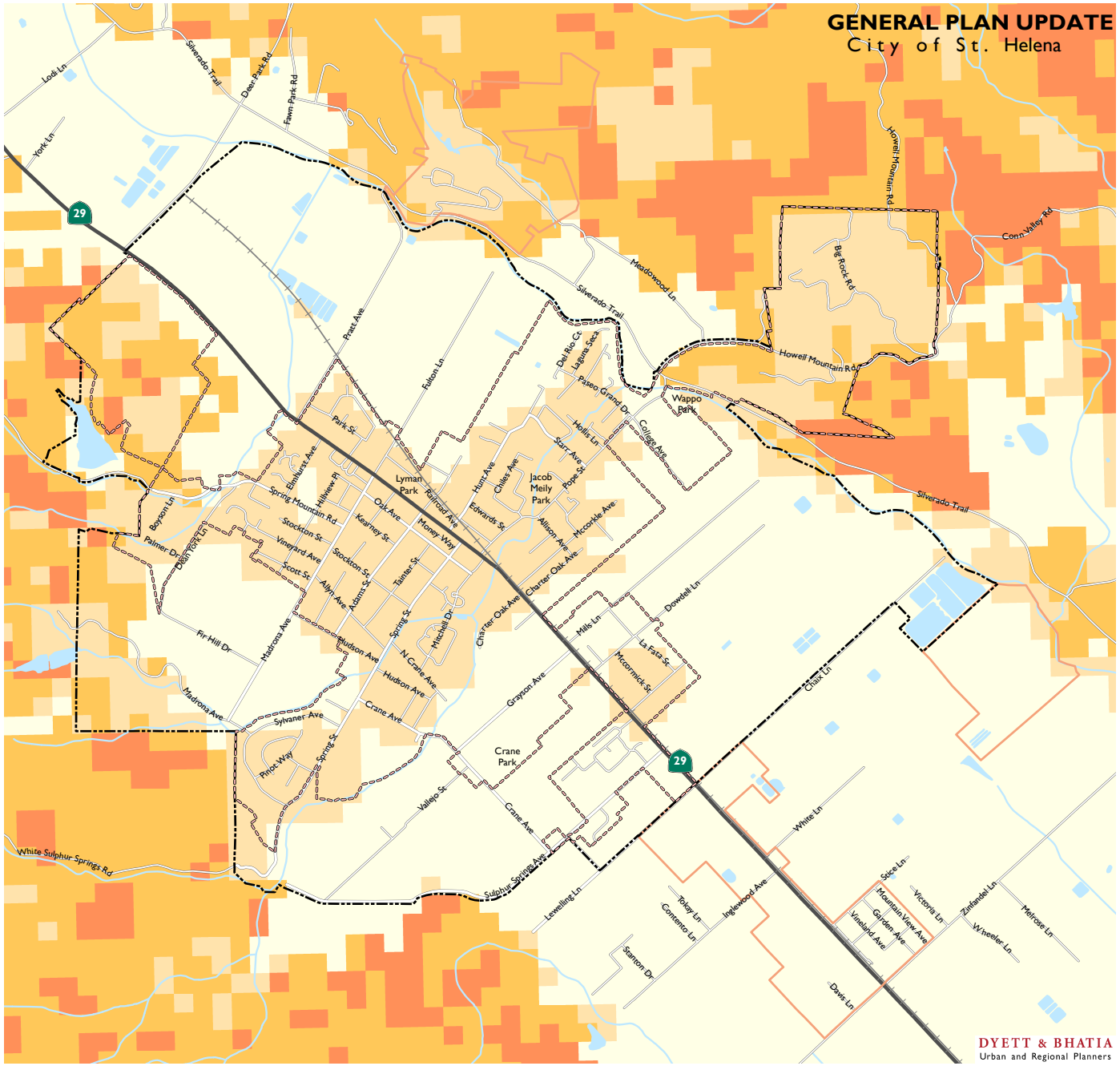
Data Source: Fire Hazard Zone, Fire and Resource Assessment Program (FRAP), Cal Fire, 2005; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.8-4

Fire Threat

Fire Threat Level (Cal Fire)

- Extreme Threat
- Very High Threat
- High Threat
- Moderate Threat
- Little or No Threat
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Fire Threat, Fire and Resource Assessment Program (FRAP), Cal Fire, 2005; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

REGULATORY SETTING

Hazardous materials and hazardous wastes are extensively regulated by federal, State, regional and local regulations, with the major objective of protecting public health and the environment. In general, these regulations provide definitions of hazardous substances; identify responsible parties; establish reporting requirements; set guidelines for handling, storage, transport, remediation, and disposal of hazardous materials and wastes; and require health and safety provisions for both workers and the public, such as emergency response and worker training programs. Sites which are subject to these regulations are identified on periodically-updated published lists at the federal, state, and local levels; the regulated sites include underground storage tank (UST) locations. The major regulations relevant to the Proposed Plan are summarized in the following subsections.

Federal Regulations

Environmental Protection Agency (EPA)

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the HSWA.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for clean up when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List, which is a list of contaminated sites warranting further investigation by the U.S. EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

United States Department of Transportation

The U.S. Department of Transportation (DOT) regulates the interstate transport of hazardous materials and waste through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

Federal Emergency Management Agency

The primary mission of the Federal Emergency Management Agency is to reduce the loss of life and property and to protect the nation from all hazards, including natural disasters, acts of

terrorism, and other man-made disasters, by leading and supporting a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

Disaster Mitigation Act

The Disaster Mitigation Act of 2000 requires a state mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. In addition, the Disaster Mitigation Act also established a requirement for local mitigation plans.

Emergency Planning and Community Right-To-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA) of 1986 was included under the Superfund Amendments and Reauthorization Act (SARA) law and is commonly referred to as SARA Title III. EPCRA was passed in response to concerns regarding the environmental and safety hazards proposed by the storage and handling of toxic chemicals. EPCRA establishes requirements for federal, state, and local governments, Indian Tribes, and industry regarding emergency planning and Community Right-to-Know reporting on hazardous and toxic chemicals. SARA Title III requires states and local emergency planning groups to develop community emergency response plans for protection from a list of Extremely Hazardous Substances contained in the Code of Federal Regulations, Title 40 (40 CFR) Appendix B. The Community Right-to-Know provisions help increase the public's knowledge of and access to information on chemicals at individual facilities, their uses, and their release into the environment.

Occupational Health and Safety Administration

The Occupational Health and Safety Administration (OSHA) published standard 1910.120, addressing dangers that hazardous materials pose in the workplace. The standard requires that employers evaluate the potential health hazard that hazardous materials pose in the workplace and communicate information concerning hazards and appropriate protective measures to employees.

Federal Aviation Regulations Part 77

22 CFR, Part 77 establishes:

- The requirements to provide notice to the Federal Aviation Administration (FAA) of certain proposed construction, or the alteration of existing structures;
- The standards used to determine obstructions to air navigation, and navigational and communication facilities;
- The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities, or equipment; and
- The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

State Regulations

California Code of Regulations Title 3

The California Code of Regulations (CCR) Title 3: Food and Agriculture regulates the storage and transportation of pesticides. Pesticides, or any container or equipment that holds or has held a pesticide, shall not be stored, handled, emptied, disposed of, or left unattended in such a manner or at any place where they may present a hazard to persons, animals (including bees), food, feed, crops or property.

California Code of Regulations Title 22

The California Code of Regulations (CCR) Title 22 provides the following definition of hazardous materials:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration or physical, chemical, or infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible or incapacitating irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported or disposed of. Hazardous materials include waste that has been abandoned, discarded, or recycled on the property and as a result represents a continuing hazard as the development is proposed. Hazardous materials also include any contaminated soil or groundwater.*

Title 22 also provides standards applicable to generators and transporters or hazardous wastes, as well as standards for operators or hazardous waste transfer facilities, among other regulations.

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) manages hazardous materials and waste within California. CalEPA was created by the State of California to establish a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of state resources.

California Health and Safety Code, Hazardous Materials Release Response Plans and Inventory

Two programs in the California Health and Safety Code (H&SC) Chapter 6.95 are directly applicable to the CEQA issue of risk due to hazardous substance release. In Alameda County, these two programs are referred to as the Hazardous Materials Business Plan (HMBP) program and the California Accidental Release Program (CalARP). The Napa County Environmental Health Division is responsible for the implementation of the HMBP program and the CalARP program in Napa County. The HMBP and CalARP programs provide threshold quantities for regulated hazards substances. When the indicated quantities are exceeded, an HMBP or Risk Management Plan is required pursuant to the regulations. Congress requires EPA Region 9 to make RMP information available to the public through the EPA's Envirofacts Data Warehouse. The Envirofacts Data Warehouse is considered the single point of access to select EPA environmental data. California H&SC Section 25270, Aboveground Petroleum Storage Act, requires registration

and spill prevention programs for above ground storage tanks that store petroleum. In some cases, Aboveground Storage Tanks (ASTs) for petroleum may be subject to groundwater monitoring programs that are implemented by the Regional Water Quality Control Boards (RWQCBs) and the State of California Water Resources Control Board (SWRCB).

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the California Emergency Management Agency, which coordinates the responses of other agencies, including CalEPA, the California Highway Patrol, CDFW, and RWQCB.

Office of Environmental Health Hazard Assessment

The State of California Office of Environmental Health Hazard Assessment oversees implementation of many public health-related environmental regulatory programs within CalEPA, including implementing the provisions of the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Proposition 65 requires the governor to publish, at least annually, a list of chemicals known to the state to cause cancer or reproductive toxicity. The proposition was intended to protect California citizens and the state's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm and to inform citizens about exposures to such chemicals.

California Department of Toxic Substances Control

Within CalEPA, the California Department of Toxic Substances Control (DTSC) has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law. Since August 1, 1992, the DTSC has been authorized to implement the state's hazardous waste management program for the CalEPA.

The DTSC is responsible for compiling a list of hazardous materials sites pursuant to Government Code Section 65962.5, which includes five categories:

1. Hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the health and safety code;
2. Land designated as "hazardous waste property" or "border zone property;"
3. Properties with hazardous waste disposals on public land;
4. Hazardous substance release sites selected for (and subject to) a response action; and
5. Sites included in the Abandoned Site Assessment Program.

California Department of Transportation

The California Department of Transportation (Caltrans) manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases that occur on highway and freeway lanes and inter-city rail services.

State Water Resources Control Board

The SWRCB also regulates the handling, storage, and disposal of hazardous substances in construction projects. Permits and/or other action by the SWRCB may be required if contamination of water or soils occurs during the construction of the proposed project.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (DMA2K) (Public Law 106-390) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 to establish a Pre-Disaster Mitigation (PDM) program and new requirements for the federal post-disaster Hazard Mitigation Grant Program (HMGP). DMA2K encourages and rewards local and state pre-disaster planning. It promotes sustainability and seeks to integrate state and local planning with an overall goal of strengthening statewide hazard mitigation. This enhanced planning approach enables local, tribal, and state governments to identify specific strategies for reducing probable impacts of natural hazards such as floods, fire, and earthquakes. In order to be eligible for hazard mitigation funding after November 1, 2004, local governments are required to develop a Hazard Mitigation Plan that incorporates specific program elements of the DMA2K law. In the Bay Area, the Association of Bay Area Governments (ABAG) has adopted a multi-jurisdictional FEMA-approved 2010 Local Hazard Mitigation Plan Update, which cities and counties can adopt and use, in full or in part, in lieu of preparing all or part of a Local Hazard Mitigation Plan themselves (ABAG, 2010). The City of St. Helena has not adopted ABAG's multi-jurisdictional Plan but has participated in the Napa County Operational Area Hazard Management Plan.

State Multi-Hazard Mitigation Plan, 2013

The State Hazard Mitigation Plan (SHMP) is a federally required official statement of the state's hazard identification, vulnerability analysis, and hazard mitigation strategy (44 Code of Federal Regulations, Subpart M, Section 206.401) under the DMA2K for the State of California to receive federal funds for disaster assistance grant programs. The goal of the SHMP, prepared by the California Office of Emergency Services (OES), is to guide implementation activities to achieve the greatest reduction of vulnerability, which results in saved lives, reduced injuries, reduced property damage, and protection for the environment.

California Strategic Fire Plan, 2010

The California Strategic Fire Plan is a statewide plan developed by the State Board of Forestry and Fire Protection and CAL FIRE to achieve a more resilient natural environment and man-made assets that are more resistance to the occurrence and effects of wildland fire through local, State, federal, and private partnerships. The plan focuses on fire suppression and prevention efforts,

including hazard and risk assessment, land use planning, cooperation between fire protection jurisdictions, fire-resistant development, as well as post-fire recovery efforts. Land use policies include providing for defensible space, fuel management, development review, and fire-resistant construction.

State of California Emergency Plan, 2009

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the California Emergency Management Agency, which coordinates the responses of other agencies, including CalEPA, the California Highway Patrol, the California Department of Fish and Wildlife, and RWCBs.

State Underground Storage Tank Program

State laws also regulate Underground Storage Tanks (USTs) and ASTs containing hazardous substances. These laws are primarily found in the Health and Safety Code, and, combined with CCR Title 23, comprise the requirements of the State UST program. The laws contain requirements for UST permitting, construction, installation, leak detection monitoring, repairs and corrective actions and closures.

Carpenter-Presley-Tanner Hazardous Substance Account Act

The Carpenter-Presley-Tanner Hazardous Substance Account Act (HSAA), which is modeled after CERCLA, imposes liability for hazardous substance removal or remedial actions and requires the DTSC to adopt, by regulation, criteria for the selection and for the priority ranking of hazardous substance release sites for removal or remedial action under the act.

Public Resources Code 21151.4

Public Resources Code 21151.4 regulates hazardous materials near schools. Public Resources Code Section 21151.4 prohibits the certification of an EIR for a project involving the construction or alteration of a facility that might reasonably be anticipated to emit hazardous air emissions or handle extremely hazardous air emissions in a quantity greater than a certain threshold, within one-quarter mile of a school.

SB 1889, Accidental Release Prevention (ARP) Law/Chemical Accident Release Prevention Program

SB 1889 required California to implement a federally mandated program governing the accidental airborne release of chemicals listed under Section 112 of the Clean Air Act. Effective January 1, 1997, CalARP replaced the previous California Risk Management and Prevention Program (RMPP) and incorporated the mandatory federal requirements. CalARP addresses facilities containing specified hazardous materials that, if involved in an accidental release, could result in adverse off-site consequences. CalARP defines regulated substances as chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive.

Hazardous Materials Worker Safety Requirements

The Federal Occupational Safety and Health Administration (Fed/OSHA) and the California Occupational Safety and Health Administration (Cal/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in the 29 CFR as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations; Cal/OSHA standards are generally more stringent than federal regulations.

The State regulations concerning the use of hazardous materials in the workplace are included in Title 8 of the California Code of Regulations, which contain requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information relating to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites.

Title 27, CCR

The California Department of Resources Recycling and Recovery (CalRecycle) and the Control Board jointly issue regulations pertaining to waste disposal on land, including criteria for all waste management units, facilities and disposal sites; documentation and reporting; enforcement, financial assurance; and special treatment, storage, and disposal units.

California Wildland Hazard/Building Code

On September 20, 2005, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the California Code of Regulations (CCR), Title 24, Part 2, known as the California Building Code (CBC). According to the updated regulations, new buildings located in any Fire Hazard Severity Zone shall comply with one of the following:

1. State Responsibility Areas. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

2. Local Agency Very-High Fire Hazard Severity Zone. New buildings located in any Local Agency Very High Fire Hazard Severity Zone for which an application for a building permit is submitted on or after July 1, 2008, shall comply with all sections of this chapter.

According to CAL FIRE's maps of fire hazard severity zones, the City of St. Helena and Study Areas 2 and 3 are located in a Local Responsibility Area, and Study Area 1 is located in a State Responsibility Area. No areas within the Planning Area are identified as very high fire hazard severity areas. However, as described in the "Environmental Setting" section, the Planning Area does include high and moderate wildfire severity zones.

Local Regulations

CalEPA's Unified Program

In 1993, Senate Bill 1082 gave CalEPA the authority and responsibility to establish a unified hazardous waste and hazardous materials management and regulatory program, commonly referred to as the Unified Program. The purpose of this program is to consolidate and coordinate six different hazardous materials and hazardous waste programs, and to ensure that they are consistently implemented throughout the state. CalEPA oversees the Unified Program with support from the DTSC, RWQCBs, the OES, and the State Fire Marshal.

State law requires county and local agencies to implement the Unified Program. The agency in charge of implementing the program is called the Certified Unified Program Agency (CUPA). The Napa County Division of Environmental Health is the designated CUPA for the county.

Napa County Operational Area Hazard Management Plan, 2013

The City of St. Helena participated in the Napa County Operational Area Hazard Management Plan, which was adopted in 2013 and satisfies the requirements of the DMA2K. The plan includes a risk assessment that resulted in the profiling of hazards that pose risk to Napa County, assessment of the County's vulnerability to those hazards, and examined the capabilities in place to mitigate them. Vulnerabilities identified, profiled, and analyzed in this plan include flooding, earthquakes, and wildland/urban interface fires. The plan also identifies goals for reducing risks from hazards. Objectives of the plan are to:

- Protect life and property;
- Ensure emergency services;
- Increase public awareness and understanding of hazard mitigation;
- Protect critical facilities properties, infrastructure and other community assets from the impacts of hazards; and
- Continue to strengthen communication and build on the collaborative success already achieved.

In addition to county-wide risk assessment, the plan includes city-specific risk assessments. Information for the City of St. Helena is in Appendix E of the plan. Appendix A details the Napa County Operational Area, which includes the St. Helena SOI and the three study areas analyzed under the Proposed Plan and this EIR.

Napa County Department of Environmental Health (NCDEH)

NCDEH is the administrative agency that coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in Napa County. As the CUPA for Napa County, NCDEH administers the following programs:

- Hazardous Materials Business Plan Program
- Hazardous Waste Generator Program

- Underground Storage Tank Program
- California Accidental Release Program
- Aboveground Storage Tank Program
- Emergency Response

St. Helena Municipal Code

Chapter 2.64 Emergency Services

Chapter 2.64 of the St. Helena Municipal Code aims to provide for the preparation and carrying out of plans for the protection of persons and property within the city in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions with all other public agencies, corporations, organizations, and affected private persons. This chapter also establishes responsibilities for carrying out the City of St. Helena Emergency Plan.

Chapter 15.36 California Fire Code Adopted

Chapter 15.36 of the St. Helena Municipal Code adopts the California Fire Code (CFC) of the state of California, amended to address local climatic, geological, or topographic conditions pursuant to Health and Safety Code Section 17958. These additional provisions address the significant threat of wildfire due to drought and native vegetation that is highly flammable, earthquakes, and the geographic division of the city into two parts by the north to south flow of the Napa River. Additionally, the California Fire Code, Chapter 49, defines a Fire Hazard Severity Zone as any area classified as Very High, High, or Moderate in State Responsibility Areas, or classified as Very High Fire Hazard Severity Zone in a Local Agency Responsibility Area - wildland-urban interface (WUI) areas are those that have structures on or adjoining such areas. There are no Very High Fire Severity Zones in St. Helena's Local Agency Responsibility Area, but the City is adjacent to both High and Moderate Fire Severity Zones (see Figure 3.8-3), and, as such, these areas fall under the WUI guidelines set forth in Chapter 49 of the Fire Code and Chapter 7A of the Building Code.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact related to hazards and hazardous materials would occur if the Proposed Plan would:

Criterion 1: **Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials;**

Criterion 2: **Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;**

Criterion 3: **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;**

Criterion 4: **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;**

Criterion 5: **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;**

Criterion 6: **Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or**

Criterion 7: **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, public use airport, or private airstrip, would the project result in a safety hazard for people residing or working in the Planning Area.**

METHODOLOGY AND ASSUMPTIONS

This analysis considers the range and nature of foreseeable hazardous materials transport, use, storage, and disposal resulting from implementation of the Proposed Plan, and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. It also includes an analysis of the risks related to fire hazards within the City of St. Helena. Compliance with applicable federal, State, regional, and local health and safety laws and regulations by residents and businesses in the city is intended to protect the health and safety of the public. State and local agencies are required to enforce applicable requirements. In determining the level of significance, this analysis assumes that development, infill development, and redevelopment under the Proposed Plan would comply with relevant federal, State, regional, and local ordinances and regulations.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

The following relevant policies and implementing actions of the General Plan Update address hazards and hazardous materials:

Open Space and Conservation Element

- ***OS4.2.*** Encourage the clean-up of contaminated sites to protect the environment and public well-being.
- ***OS4.3.*** Promote best management practices that encourage protection of soil, groundwater, and surface water resources from industrial, agricultural and other uses that produce or dispose of hazardous or toxic substances.

Public Health, Safety, and Noise Element

- ***PS4.1.*** Use the Zoning Code to define a transitional zone around industrial areas to protect the health and safety of residential neighborhoods.
- ***PS4.2***. Limit development in areas of High and Very High wildfire hazard as defined and mapped by the California Department of Forestry and Fire Prevention (CalFire) in order to prevent the loss of lives, injuries, and property damage due to wildfires.
- ***PS4.3.*** Protect St. Helena residents from health and safety impacts related to the use, storage, manufacture, and transport of hazardous materials.
- ***PS4.4.*** Discourage new uses that rely extensively on the use of hazardous materials.
- ***PS4.5.*** Facilitate communication and education about fire safety, non-point source pollution, household hazardous waste disposal and recycling opportunities.
- ***PS4.6***. Ensure that all streets and roads are adequate in terms of width, turning radius and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress.
- ***PS4.A.*** Designate areas in St. Helena that are prone to fire hazards and make this information available to the community.
- ***PS4.B.*** Continue to require implementation of best practices in fire resistance for all new and remodeled structures in fire-prone areas, including fire fuel removal, creation of defensible space for firefighters, construction with fire-resistant building materials, and installation of automatic sprinkler systems. Study the need to designate a Wildland-Urban Interface Fire Area within St. Helena to provide protection in additional areas.
- ***PS4.C.*** Require all structures in high wildfire hazard areas to maintain a clearance of flammable vegetation away from structures, and to use fire-resistant ground covers. The minimum clearance distance should be 30 feet.
- ***PS4.D*** Require all new development to meet the minimum fire flow rates specified by the City's Fire Code.
- ***PS4.E*** Require all new development plans to be approved by the Fire Department prior to the issuance of building permits, grading permits or final map approval.
- ***PS4.F*** Develop a program to inform and educate the community about potential risks, resources and roles and responsibilities for addressing fire safety in St. Helena. Inform residents of homes adjacent to public lands of their responsibility to provide fire breaks adjacent to their homes.
- ***PS4.G*** Review all new development proposals for their potential to introduce the production, use, storage and/or transport of hazardous materials, and require reasonable controls on such materials.
- ***PS4.H*** Develop a Hazardous Materials Response Plan that includes guidelines, protocols and strategies to respond to a local hazardous materials spill.
- ***PS4.I*** Continue to require compliance with federal, State, and local regulations for the safe production, transport, handling, use, and disposal of hazardous materials that may

cause air, water, or soil contamination. Require buffers for operations which handle substantial amounts of hazardous materials. When siting new facilities or expanding existing facilities, require buffer zones between hazardous materials facilities and residential uses, parkland, trails, and open space facilities.

- ***PS4.J*** Develop and launch a citywide education campaign to encourage the use of green products in order to reduce non-point source pollution. Target efforts towards the reduction of household chemical use and hazardous waste disposal.
- ***PS4.K*** Require environmental assessments during the planning for development in areas previously used for agricultural, commercial or industrial uses. Remediation of identified contamination that may result from health risks or construction workers and future owners and users shall be required prior to approval of construction, demolition and grading permits for development.

IMPACTS

Impact 3.8-1 Development under the Proposed Plan could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. *(Less than Significant)*

Current land uses, as well as future land uses under the Proposed Plan, involve or could involve the transport, use, storage, generation, and disposal of hazardous materials, including lead and asbestos from building materials, chemicals from commercial uses, or fertilizers and pesticides from agricultural uses. As described in the Setting Sections, many businesses in the Planning Area currently use hazardous materials and generate hazardous wastes, which require regulatory oversight to protect human health and the environment. This includes current and former hazardous materials use sites and agricultural tank sites at and adjacent to Potential Land Use Change Areas 1 through 13 (see General Plan Figure 2.8), as well as pesticides used for agriculture. These uses are regulated by the Napa County PBES under State and Federal laws and regulations, including the DTSC, which regulates the generation, transport, and disposal of hazardous waste, and the SWRCB, which enforces the Clean Water Act and protects the quality of ground and surface waters. Routine transport of hazardous materials on State Route 29 are regulated and monitored by USDOT, Caltrans, and the California Highway Patrol. Any hazardous material transport on the Napa Valley Wine Train rail tracks would be regulated and monitored by USDOT. Agricultural transport and use of pesticides, which takes place on most agricultural use-designated land within and adjacent to the Planning Area, is regulated by CCR Title 3, which mitigates risks of hazard through routine use. Additionally, General Plan Policy OS4.3 and Implementing Actions PS4.G, PS4.H, and PS4.I would require review of development proposals and use of best management practices, including buffer zones, to ensure hazardous materials are managed safely within the City of St. Helena and therefore would serve as mitigation measures to reduce impacts to less than significant levels.

Households in the Planning Area could also typically use small quantities of potentially hazardous materials for garden care and building maintenance, including but not limited to garden chemicals, paints, solvents and car care products. Similar materials are also maintained for public buildings and uses, such as the City Corporation Yard and City Hall. Title 27 of the CCR regulates

waste disposal, including hazardous materials, to reduce exposure to potential hazards. General Plan Policy PS4.5 and Implementing Action PS4.J address the education of St. Helena households regarding the use and disposal of hazardous wastes.

Although the use and storage of hazardous materials releases cannot feasibly be eliminated, the requirements of existing regulatory programs combined with implementation of Proposed Plan policies referenced above would reduce potential impacts of routine transport, use, or disposal of hazardous materials and reasonably foreseeable upset or accident conditions to a less-than-significant level.

Mitigation Measures

None required.

Impact 3.8-2 Development under the Proposed Plan would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (*Less than Significant*)

Implementation of the Proposed Plan could result in future development of land uses that may involve the use, transportation, disposal, and storage of hazardous materials in the the City of St. Helena. Thus, personal injury, property damage, environmental degradation, or death could potentially result from the release of hazardous materials caused by upset or accident conditions.

Although the risk of upset and accident conditions involving the release of hazardous materials into the environment cannot be completely eliminated, it can be reduced to a manageable level. Existing regulations at the federal, State, and local levels serve to minimize the potential for upset during routine transportation, use, and disposal, including of agricultural pesticides. Additionally, regulations are in place to minimize the risk of upset or accident involving sites that have previously been contaminated by hazardous substances. Proper implementation of the County's CUPA programs would help to ensure documentation of releases and threatened releases as well as the development of risk management and hazardous materials release response plans.

Policies and implementing actions within the Proposed Plan would reduce risks associated with the accidental release of hazardous materials. Policy PS4.4 discourages new development that relies on toxic substances; Policy PS4.6 ensures that streets and roadways have proper turning radii and grade to facilitate emergency access; Implementing Action PS4.H calls for the development of a Hazardous Materials Response Plan; and Implementing Action PS4.I requires continued compliance with regulations regarding the safe production, transport, handling, use and disposal of hazardous materials that may cause air, water or soil contamination. Additionally, several policies and implementing actions, including PS4.5 and PS4.J, involve educating the community on hazardous materials.

Given existing regulations and programs and Proposed Plan policies and implementing actions that reduce the potential for hazardous materials upsets and promote the ability of emergency services to respond to incidents, impacts associated with the release of hazardous materials into the environment would be less than significant.

Mitigation Measures

None required.

Impact 3.8-3 Development under the Proposed Plan could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. *(Less than Significant)*

Implementation of the Proposed Plan would allow land uses to be developed within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. As shown on Figure 3.8-5, several schools within the City of St. Helena are located within a one-quarter mile of proposed industrial or agriculture land uses. These land uses are most likely to handle or emit hazardous materials. For example, in areas with industrial land use designations, uses could include light manufacturing, auto services, and contractors' yards, which could handle or emit toxic chemicals or volatile chemicals. Uses in the agriculture land use designation could emit pesticides and herbicides. While nearly all schools within the Planning Area are within a one-quarter mile buffer of agriculture land uses, only three schools (St. Helena High School, St. Helena Primary School, and St. Helena Catholic School) are in close proximity to industrial land uses. The Proposed Plan does not expand the agriculture or industrial land use designations, and would therefore not increase school exposure to hazardous materials.

Under State law, schools must be sited to prevent them from being located near hazardous materials sites. Therefore, future schools constructed within the City of St. Helena could not be located near hazardous material sites. According to the California Education Code, public schools are required to evaluate and potentially amend their school safety plan on an annual basis. Additionally, Policy PS4.1 and Implementing Action PS4.I of the Proposed Plan call for buffer zones between industrial properties and "residential uses, parkland, trails and open space facilities." Implementing Action PS4.K would require detailed analysis and remediation, if necessary, when properties historically devoted to agriculture, commercial or industrial are redeveloped for other uses, including schools.

These measures, as required by the Proposed Plan, in coordination with existing regulatory programs, would reduce potential impacts to a less-than-significant level.

Mitigation Measures

None required.

Figure 3.8-5

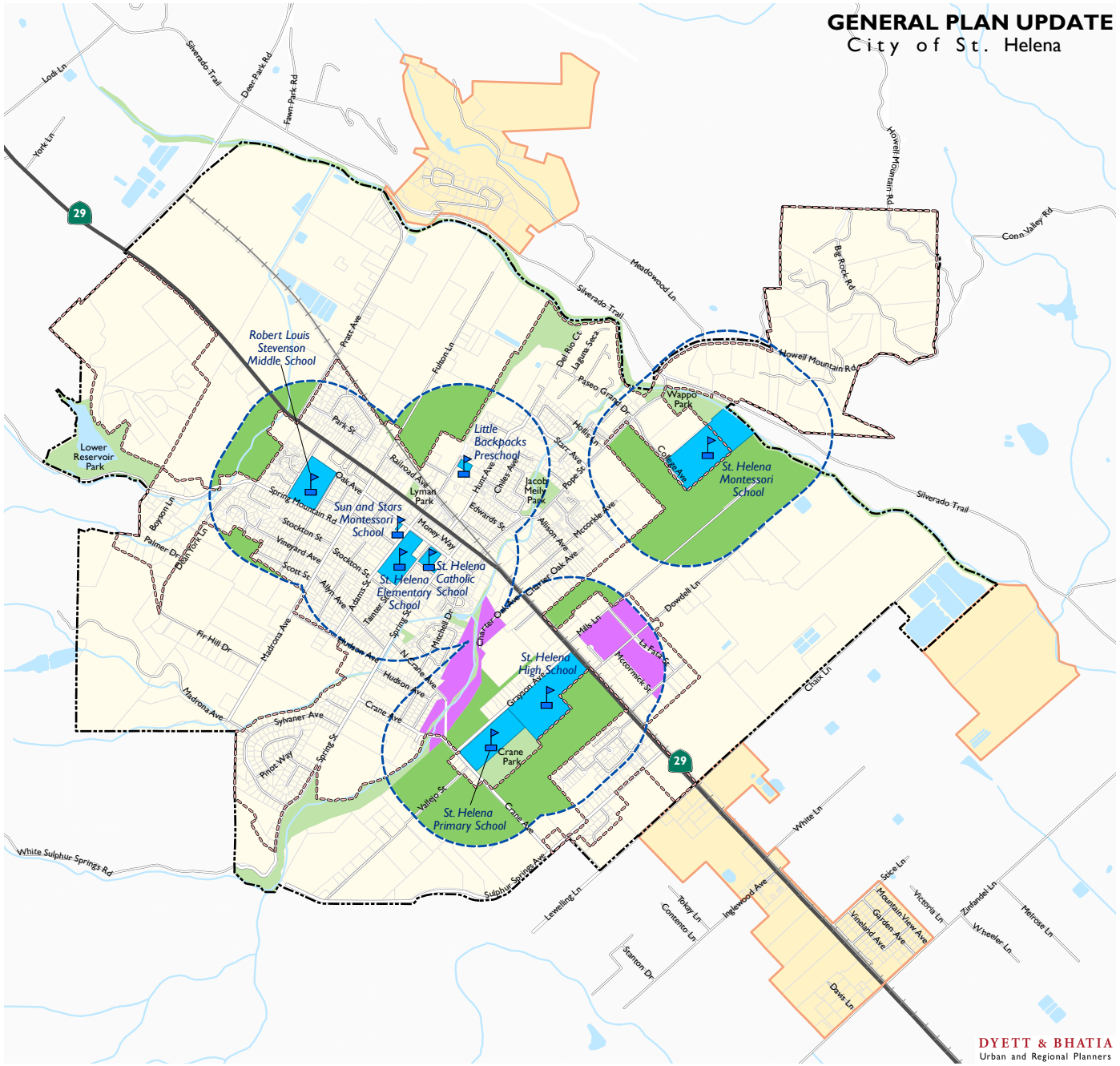
Proposed Land Use Within a Quarter-Mile of Schools

- Existing Schools
- Existing Schools Quarter Mile Buffer
- School Property

Proposed Land Use

- Industrial
- Agriculture

- Railroads
- Water Features
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Impact 3.8-4 Development under the Proposed Plan could result in a project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (the "Cortese List") and, as a result, create a significant hazard to the public or the environment*. (Less than Significant)*

Redevelopment of sites with existing soil or groundwater contamination in accordance with the Proposed Plan could potentially pose a significant hazard to the public or the environment through releases of hazardous materials into the environment. As discussed in the "Physical Setting" section, there are numerous sites in the Planning Area that are included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 (see Figure 3.8-2 and Table 3.8-1). The majority of these sites are closed and two are currently undergoing remediation, which is subject to various State and federal laws and regulators, including CERCLA, EPA, DTSC, and the RWQCB.

Many of the hazardous material sites within the Planning Area are concentrated along Highway 29, where some change areas are identified under the Proposed Plan. Existing regulations and CUPA programs would also require the reporting and documentation of any hazardous materials incidents in the Planning Area such that property owners could be aware of potential hazards. For future projects, the California Environmental Quality Act (CEQA) requires developers to reference the Cortese List and state if the project or any alternatives would be located on a listed site. Implementing Action PS4.K requires environmental assessments during the planning process for development in areas previously used for agricultural, commercial, or industrial uses and requires remediation, if necessary, before construction. Compliance with these policies, regulations, and programs would reduce the impact to less than significant.

Mitigation Measures

None required.

Impact 3.8-5 Development under the Proposed Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*Less than Significant*)

Development under the Proposed Plan, including new land uses and increased densities, has the potential to create obstacles to the implementation of emergency response or evacuation plans adopted for the City of St. Helena. Relevant emergency response or evacuation plans in the Planning Area include the Napa County EOP and the Napa County Operational Area Hazard Management Plan. Several General Plan policies and implementing actions address the reduction of risk due to hazards, which, in turn, reduces the impact of new development on emergency response plans. Policies PS4.2, PS4.4, and PS4.6 discourage high risk new development (including development on hillsides and in fire hazard zones) and new uses that rely on hazardous materials, and ensure that new roadways have the proper turning radius to accommodate emergency vehicles. Implementing actions PS4.B, PS4.C, PS4.D, and PS4.E address development approvals, such as best practices for building codes in fire-prone areas, meeting minimum flow rates, and having all new development plans be approved by the Fire Department. While the City of St.

Helena does not currently have an emergency response plan, Implementing Action PS4.H calls for the development of a Hazardous Materials Response Plan. Regulations, policies, and implementation actions in the Proposed Plan would reduce the impact to less than significant.

Mitigation Measures

None required.

Impact 3.8-6 Future development allowed under the Proposed Plan would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (*Less than Significant*)

Implementation of the Proposed Plan could create a significant impact if future development were located in areas with high wildfire risk. As described in the "Environmental Setting" section above, a few areas within the Planning Area have been classified by the State as having "very high" fire risk, which require implementation of State wildfire prevention measures. Further, some areas in the western uplands of the city and Study Area 1 have been classified as having "high" fire threat (see Figure 3.8-4), including a portion of General Plan Potential Change Area 9 (see General Plan Figure 2.8). Chapter 15.36 of the St. Helena Municipal Code adopts an amended version of the California Fire Code, which regulates fire safety for new construction. The California Strategic Fire Plan also reduces the fire risk of new development by focusing on fire suppression and prevention efforts, including hazard and risk assessment, land use planning, cooperation between fire protection jurisdictions, fire-resistant development, and post-fire recovery efforts.

Additionally, several policies and implementing actions in the Proposed Plan address potential fire hazards. Policy PS4.2 would limit development in areas where potential wildfire hazards exist, and Policy PS4.5 encourages fire safety education. Implementing Actions PS4.A thorough PS4.F include the implementation of building design and vegetation management requirements in "high" fire risk areas comparable to State requirements for "very-high" risk areas. The requirements of Policy PS4.2, PS4.5, and Implementing Actions PS4.A through PS4.5, combined with the California Building Code standards and the review of all new structures and land uses in these areas, by the St. Helena Fire Department to ensure that hazards from wildfire will reduced potential impacts to a less-than-significant level.

Mitigation Measures

None required.

Impact 3.8-7 Development under the Proposed Plan would not result in a safety hazard for people residing or working within an airport land use compatibility plan area or, where such a plan has not been adopted, within two miles of a public airport or public use airport or in close proximity to a private air strip. (*No impact*)

There are no airport land use compatibility plans affecting any portion of the Planning Area. Additionally, as described in the "Environmental Setting" section above, no public airports, public use airports, or private airstrips are located within two miles of the Planning Area. The nearest public use airport is Angwin-Parrett Field, located four miles northeast of the Planning Area. The nearest private airport is the Pope Valley Airport, located seven miles northeast of the Planning Area. The nearest regional airport is the Charles M. Schulz Sonoma County Airport, 19 miles west of the Planning Area. Thus, implementation of the Proposed Plan would have no impact on safety hazards due to aviation, including smoke, fuel storage, or exposure to hazardous chemicals, on people working or residing within the City of St. Helena.

Mitigation Measures

None required.

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3.9 Hydrology and Water Quality

This section assesses potential environmental impacts on hydrology and water quality from future development under the Proposed Plan. Issues addressed include water quality standards, groundwater resources, drainage, and flood hazards related to rivers, sea level rise, dam failure, seiches, tsunamis, and mudflows. The section describes existing surface water and groundwater hydrology, water quality, and flood hazards in the Planning Area, as well as relevant federal, State, and local regulations and programs.

Responses to the NOP regarding topics addressed in this section included the following:

- The EIR should assess any safety issues related to the Flood Control Project based on documentation from the Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers. This comment is addressed in Impact 3.9-8.

Environmental Setting

PHYSICAL SETTING

Climate

The City of St. Helena has a Mediterranean climate, with distinct wet and dry seasons. The climate is characterized by long, dry, warm summers and mild, relatively wet winters. The average maximum temperature during the months of July and August is about 90 degrees Fahrenheit (°F), and average minimum temperatures drop to 30 to 40°F in winter. The mean annual precipitation is about 37 inches, with most of the rainfall occurring between November and April and the highest average rainfall totals occurring in February and December (WorldClimate.com, 2018). Snowfall in Napa County is not uncommon at higher elevations. However, the vast majority of the precipitation occurs as rain, and snow generally does not persist for more than a few days following a storm event except at the very highest elevations.

Topography

The Planning Area is located within Napa Valley. Sited in the northern Coast Range of California, which parallels the coastline from the Oregon border to just north of the Los Angeles Basin, topography within the county consists of a series of parallel northwest-trending mountain ridges and intervening valleys. The Napa Valley is about three miles wide and 40 miles long.

The Planning Area is within the Napa River watershed, which consists of the valley floor surrounded by Coast Range mountains. Napa Valley floor elevations range from approximately

400 feet above mean sea level (msl) in the north to sea level at San Pablo Bay. The valley is bound to the west by the Coast Range Mayacama Mountains ranging from 1,000 to 2,700 feet above msl, to the north by Mount St. Helena, and to the east by the northwest-trending Coast Range Vaca Mountains that are generally 2,000 feet above msl and higher. The highest peak surrounding the valley is Mount St. Helena at an elevation of 4,343 feet (PMC, 2007).

Groundwater Resources

The Planning Area overlies the Napa Valley Subbasin (basin number 2-002.01) of the Napa-Sonoma Valley Basin (basin number 2-002). Other jurisdictions in the subbasin's boundaries include the City of Napa, the Town of Yountville, the City of Calistoga, and unincorporated portions of Napa County.

Groundwater recharge within the subbasin occurs primarily through infiltration and deep percolation of rainfall and applied irrigation water within the Napa Valley. Precipitation falling on upland areas adjacent to the Napa Valley can runoff and become streamflow and/or percolate to groundwater and contribute groundwater to the subbasin. Portions of the Planning Area located in the subbasin boundaries have been identified as containing geologic units with the greatest recharge potential, including Napa Valley alluvium, alluvial fan deposits, and Sonoma volcanics tuff (Luhdorff & Scalmanini, 2016). Recharge of groundwater also occurs through surface water infiltration of water flowing within stream and river channels; this occurs during times and at locations where groundwater levels are below the stream stage.

Groundwater level trends in the Napa Valley Subbasin of the Napa-Sonoma Valley Groundwater Basin are stable in the majority of wells. Some wells with long historical measurement records illustrate that the stability of these water level trends extends over several decades. While many wells have shown at least some degree of response to recent drought conditions, the water levels observed in recent years are generally higher than groundwater levels in the same wells during the 1976 to 1977 drought (Luhdorff & Scalmanini, 2016). Although the majority of wells exhibit stable trends, periods of year-to-year declines in groundwater levels have been observed in a few wells, including a well in the southeastern St. Helena Subarea (NapaCounty-132). These locations are characterized in part by relatively thin alluvial deposits, which may contribute to more groundwater being withdrawn from the underlying semi-consolidated deposits. Driven largely by the transition in agricultural sources of supply as identified by DWR land use surveys, groundwater has increased as a proportion of the overall sources of supply, while diversions of local surface water, particularly local diversions from the Napa River system within the subbasin itself have declined by about half of initial levels.

Surface Water Resources

The Planning Area's surface water resources are within the San Pablo Basin Hydrologic Planning Area, as designated in the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) (RWQCB, 2017). The Napa River watershed is within this hydrologic planning area. The river drains numerous tributaries on its 55-mile run from its headwaters at Mount St. Helena to San Pablo Bay. The lowest reaches of the Napa River and tributaries in the lower Napa Valley are tidally influenced because of their proximity to San Pablo Bay; the Napa River is tidally influenced northward into the City of Napa, which is south of the Planning Area. Surface water resources in

the Planning Area include the Napa River and its tributaries, York Creek, and Sulphur Creek, as shown on Figure 3.9-1 and described below.

Beneficial uses of the Napa River include agricultural supply, municipal and domestic supply, groundwater recharge, cold freshwater habitat, fish migration, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, non-contact water recreation, and navigation (RWQCB, 2017).

York Creek Subwatershed

York Creek originates on the eastern slope of the Mayacamas Mountains and flows easterly to its confluence with the Napa River. York Creek enters the Planning Area from the west near the Lower Reservoir and flows north into the Napa River west of Pratt Avenue. Within the city, York Creek has been modified through riparian vegetation removal, bank hardening, levee construction, and bridge placement.

The Upper Reservoir is located on York Creek approximately one and a half miles upstream of the Planning Area. Use of the Upper Reservoir for water storage and supply ended in the 1980s due to sedimentation issues, but the Upper York Creek Dam (UYCD) is still in place. Low flows from York Creek entering the reservoir are directed to a drop-inlet standpipe located just behind the face of the dam. During periods of high flow, a concrete spillway parallel to Spring Mountain Road conveys storm flows approximately 100 feet downstream, where the flows rejoin York Creek. The York Creek diversion dam is located about half a mile downstream of the Upper Reservoir. Its function is to divert water from York Creek to the Lower Reservoir.

The Upper Reservoir captures all of the coarse sediment produced in its 2.4-square-mile drainage area. The channel below the dam has adjusted to a sediment-starved condition over the last 100 years. Channel incision that has occurred in both York Creek and the Napa River has been attributed in part to the construction of the Upper Reservoir and the associated reductions in gravel supply (Prunuske Chatham, Inc., 2007).

Constructed in 1900, the UYCD is now out of service and is preventing access to upstream spawning and rearing habitat for the threatened CCC steelhead and from needed natural sediment flow to Lower York Creek and the Napa River. As a means of improving the Upper York Creek Dam habitat, the City of St Helena initiated a project known as the Upper York Creek Dam Removal and Ecosystem Restoration (UYCDR) project. The UYCDR project will modify the upper dam, by cutting a 23-foot-wide notch in the earthen dam, to allow for fish passage. This measure will establish habitat connectivity by providing access to 1.5 miles of spawning and rearing habitat for CCC steelhead and habitat connectivity for both anadromous and resident fish and other aquatic and riparian species. It will restore unimpeded flow to York Creek which has been prohibited for the past 115 years.

The UYCDR will reduce the potential for future downstream habitat degradation and fish kills by preventing potentially detrimental sediment releases during summer low-flow conditions that have caused fish and aquatic organism kills in the past. It will also provide a permanent solution to prevent short-term aquatic habitat impairment associated with possible dam breach/failure. Lastly, the project will restore approximately 3 acres of degraded riparian and aquatic habitat

within the existing UYCD area. Restoration of natural sediment transport processes will occur through the project site, with potential habitat improvements occurring in downstream reaches of York Creek and the Napa River. Disturbed areas in the project site will be revegetated over 4,000 trees and plants with a palette of multistory native plants to provide diverse habitats for aquatic, riparian and terrestrial species. The UYCDR has been a long-standing goal for ecosystem restoration and assistance for the threatened CCC steelhead (UYCDR EIR 2015). The project is expected to be completed in 2019.

Existing beneficial uses of York Creek include cold freshwater habitat, fish migration, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation. Potential beneficial uses include water contact recreation and non-contact water recreation (RWQCB, 2017).

Sulphur Creek Subwatershed

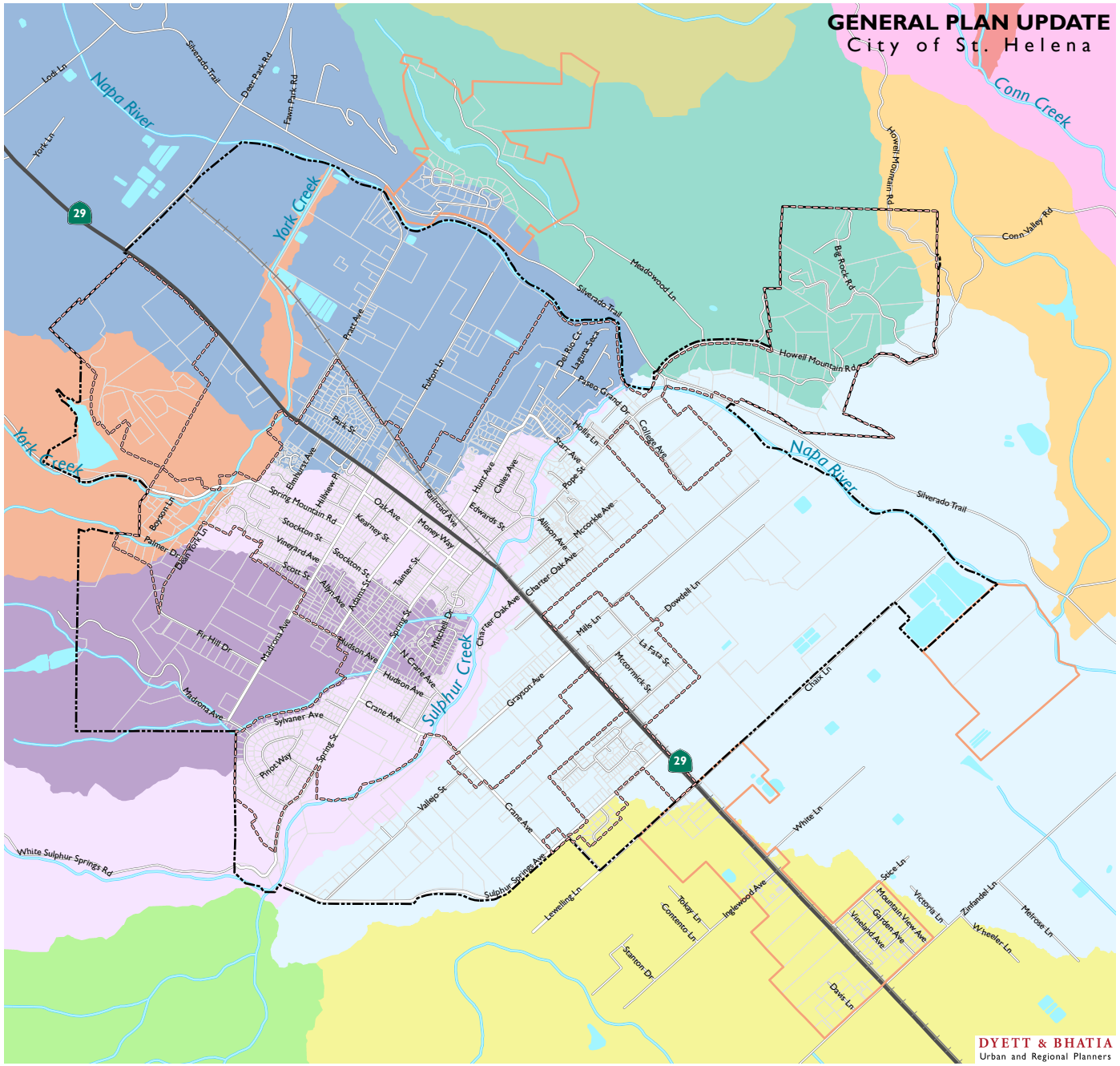
The Sulphur Creek watershed area is 9.3 square miles. Sulphur Creek has two main stems, Heath Canyon and the main stem of Sulphur Creek, which come to a confluence before Sulphur Creek exits Sulphur Canyon and flows across the valley. Heath Canyon and Sulphur Creek have a channel length of approximately 12.7 miles, and the lower one and a half miles of Sulphur Creek flow through the city. Sulphur Creek flows into the city from the south along Sulphur Springs Road and flows north and east to its confluence with the Napa River near the Pope Street Bridge.

Beneficial uses for Sulphur Creek are not specifically listed in the Basin Plan; however, the Basin Plan states that beneficial uses of any specifically identified water body generally apply to its tributaries (RWQCB, 2017).

Figure 3.9-1

Watersheds and Surface Water

- River/Streams
- Lakes/Ponds
- Bale Slough
- Canon Creek
- Conn Creek - East Fork
- Conn Creek - Main Fork
- Heath Creek
- Meadowood Creek
- Napa River-Lower St. Helena Reach
- Napa River-Upper St. Helena Reach
- Spring Valley Creek
- Sulphur Creek - Main Fork
- Sulphur Creek - North Fork
- York Creek
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source:Napa County Watersheds, Napa County GIS Data, 2005; City of St. Helena, 2018; Dyett & Bhatia, 2018

Water Quality

The quality of surface water and groundwater resources is affected by past and current land uses within the watersheds as well as by the composition of geologic materials in the vicinity.

Groundwater Quality

Historically, groundwater in the subbasin has been generally of good quality. Poor groundwater quality exists in the south and the north-central parts of the County. The poor groundwater quality includes concentrations of metals such as arsenic, iron, and manganese that exceed drinking water standards. Groundwater in St. Helena is described as generally good. Recent groundwater studies in the subbasin found generally good water quality with stable conditions. Water quality standard exceedances in the subbasin were limited to the naturally-occurring constituent arsenic, with 4 of 26 sites showing maximum concentrations above the arsenic MCL of 10 µg/L, including one site within the Planning Area (Luhdorff & Scalmanini, 2016).

The City of St. Helena has two active groundwater wells that are sources of potable water for the city. These groundwater supplies are chlorinated prior to entering the City of St. Helena's distribution system (City of St. Helena, 2016). Drinking water supply is discussed in more detail in Section 3.14, Utilities and Service Systems, of this EIR.

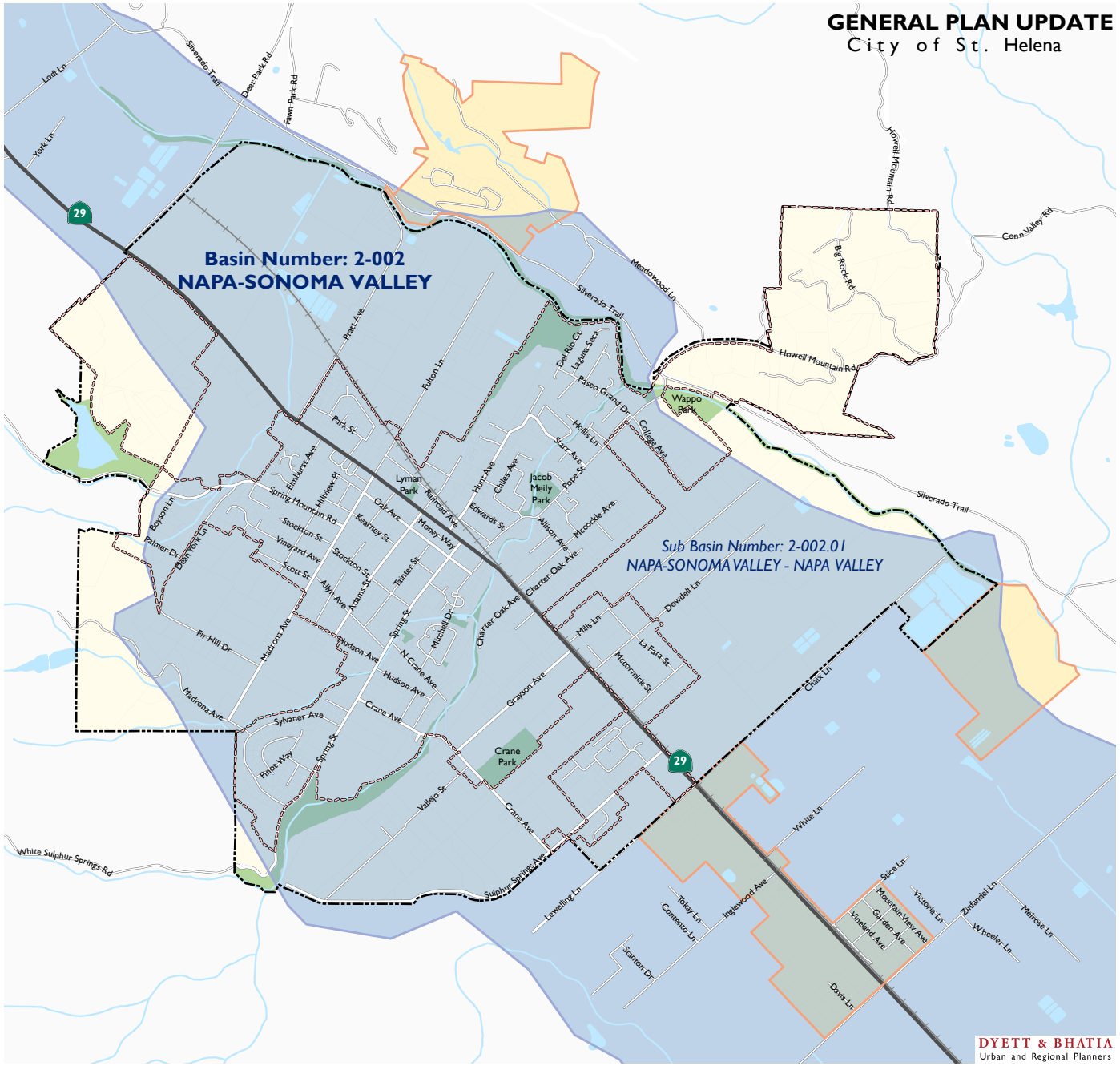
Surface Water Quality

The Napa River and its tributaries are impaired by pathogens. The most common sources of pathogens are wastes from warm-blooded animals, including humans, livestock, domestic pets, and wildlife. In addition to pathogens, both animal and human wastes contain nutrients that in excess pose a threat to aquatic ecosystem beneficial uses; the Napa River is also listed as impaired by nutrients. Human and animal waste discharges have also led to the presence of other harmful constituents such as pharmaceuticals and steroids (RWQCB, 2017). Local surface waters, collected in the Bell Canyon Reservoir, make up about half of the City's yearly water supply; all sources are treated with filtration and chlorination before entering the City's water supply.

Figure 3.9-2

Groundwater Basins

- Groundwater Basins
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: CA Bulletin 118 Groundwater Basins, California Department of Water Resources, 2015; City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Flooding

Information on flooding and dam inundation zones within the Planning Area is available from the Federal Emergency Management Agency (FEMA), the California Office of Emergency Services (via the Association of Bay Area Governments [ABAG]), and the City of St. Helena's Comprehensive Flood Protection Project ("2006 Plan").

Napa River

The majority of the flooding in Napa County occurs within the Napa Valley floor. Napa River flows are largely influenced by precipitation, with peak flows occurring generally in January or February and the lowest flows occurring August through November. Four major floods, in 1986, 1995, 1997, and 2006, caused a cumulative $95.6 million in property damage (City of St. Helena, 2012).

In October 1998, the City of St. Helena joined in a collaborative effort with the Napa County Board of Supervisors and the Napa County Flood Control District to perform a joint study of the Napa River to better understand the hydraulics of flood flows in the Napa River from Deer Park Road to below Pope Street. The study's conclusions indicated a more serious flood hazard to the community than previously established by FEMA and resulted in the enlargement of the city's 100-year floodplain. In 2006, the City of St. Helena developed the components and design measures for a comprehensive flood protection project, referred to as the "2006 Plan." The primary components of the "2006 Plan" included construction of a floodplain terrace, levee, floodwall and detention basin; bank restoration; and riparian vegetation management along the Napa River just above its confluence with Sulphur Creek (City of St. Helena, 2012).

These flood control improvements, as envisioned in the 2006 Flood Control Plan have been constructed and FEMA updated the Flood Insurance Rate Map in 2016 for properties located adjacent to the Napa River based on the improved flood control infrastructure. The current map indicates that a smaller portion of St. Helena is designated as flood hazard as a result of completing the 2006 Plan. Figure 3.9-3 shows 100-year flood zones (Special Flood Hazard Areas) as designated by FEMA.

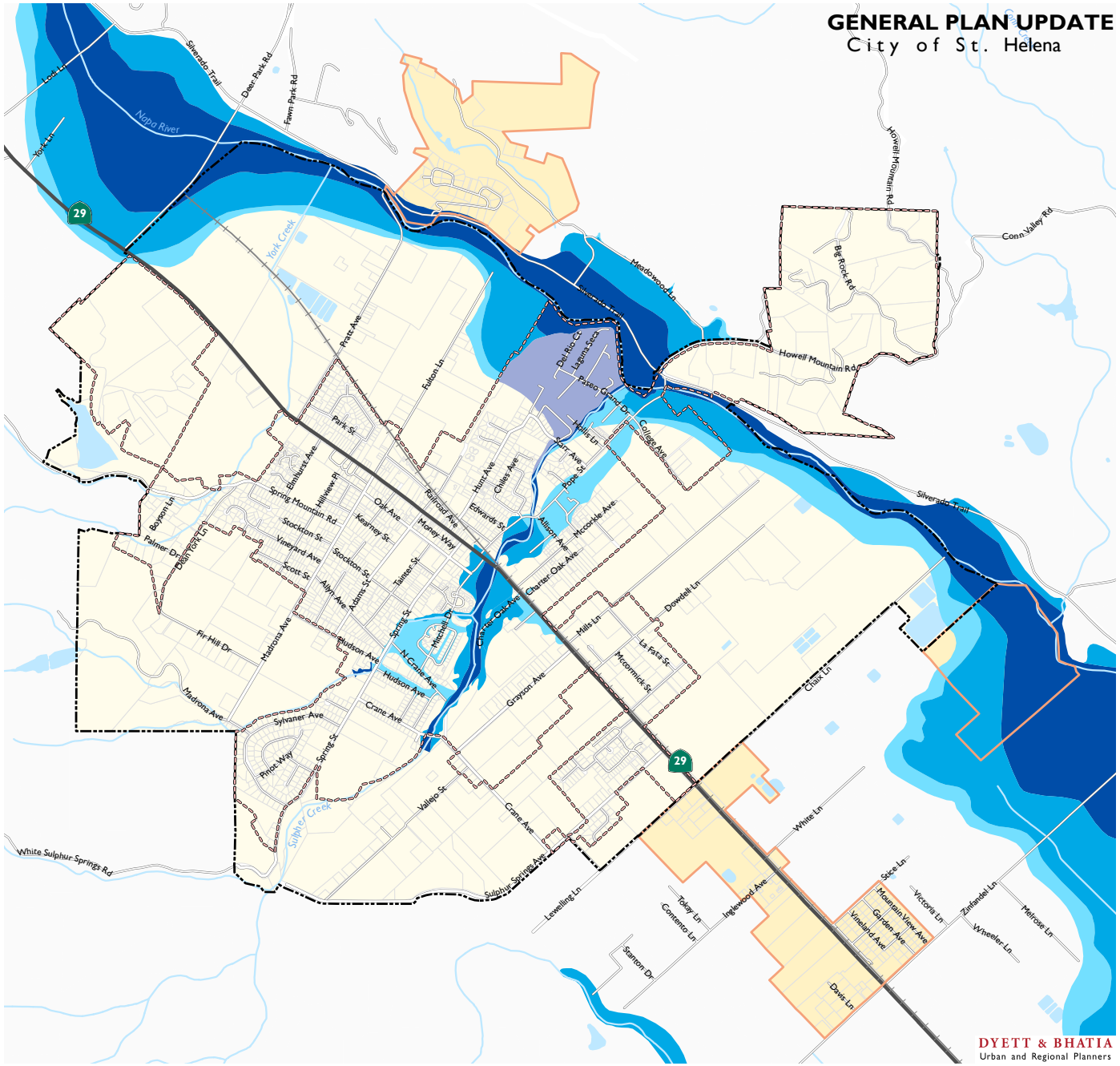
York Creek

Flooding from York Creek can significantly affect residential and industrial properties (Prunuske Chatham, Inc., 2007). In 2005, Beringer winery buildings and the Culinary Institute of America's dorms were inundated and sustained damage. In addition, the Beringer water treatment plant flooded and ponds overflowed into York Creek. Vineyards on both sides of York Creek downstream of Highway 29 to the Napa River were flooded and many had to be replaced.

Figure 3.9-3

Flood Zones

- Floodway
- 100-Year Flood Zone (1% Annual Chance Flood Hazard)
- 500-Year Flood Zone (2% Annual Chance Flood Hazard)
- Reduced Risk Areas due to Levee
- Railroads
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; FEMA, 2018; Dyett & Bhatia, 2018

Sulphur Creek

Flood hazards in the Sulphur Creek watershed are due primarily to channel bed aggradation in the lower reach where gravel mining was historically conducted. Sulphur Creek continues to supply and deposit substantial amounts of sediment in this reach, and local observations suggest that as much as five feet of material have accumulated in the channel bed since the cessation of gravel mining in 1999. Historically, gravel mining removed approximately 40,000 to 50,000 cubic yards of material annually. Consequently, the increased volume of sediment currently stored in the channel decreases the volume available for floodwater, potentially causing an increased flood hazard locally and within the City of St. Helena (Sulphur Creek Watershed Task Force et al., 2004). It is expected that the streambed will continue to aggrade without the removal of coarse sediment from the braided channel.

Multiple channel crossings and constrictions exist along Sulphur Creek and its tributaries. The main stem of Sulphur Creek has seven major road crossings comprised of bridges and box culverts. Additional, smaller crossings are located on tributaries. Most of the seven major crossings are large enough to handle flood flow, but many smaller crossings and culverts on the tributaries have been identified as undersized (Sulphur Creek Watershed Task Force et al., 2004). Channel modifications, including both on- and off-stream reservoirs, are altering flow patterns in the Sulphur Creek watershed. The watershed currently contains ten on- and off-stream reservoirs, which intercept and retain storm flows, acting to reduce the peak of the hydrograph and flooding. However, several of these reservoirs have inadequate overflow protection (i.e., spillways) and have the potential to cause severe erosion. Inadequate overflow protection also has the potential to cause catastrophic failure of a reservoir (Sulphur Creek Watershed Task Force et al, 2004).

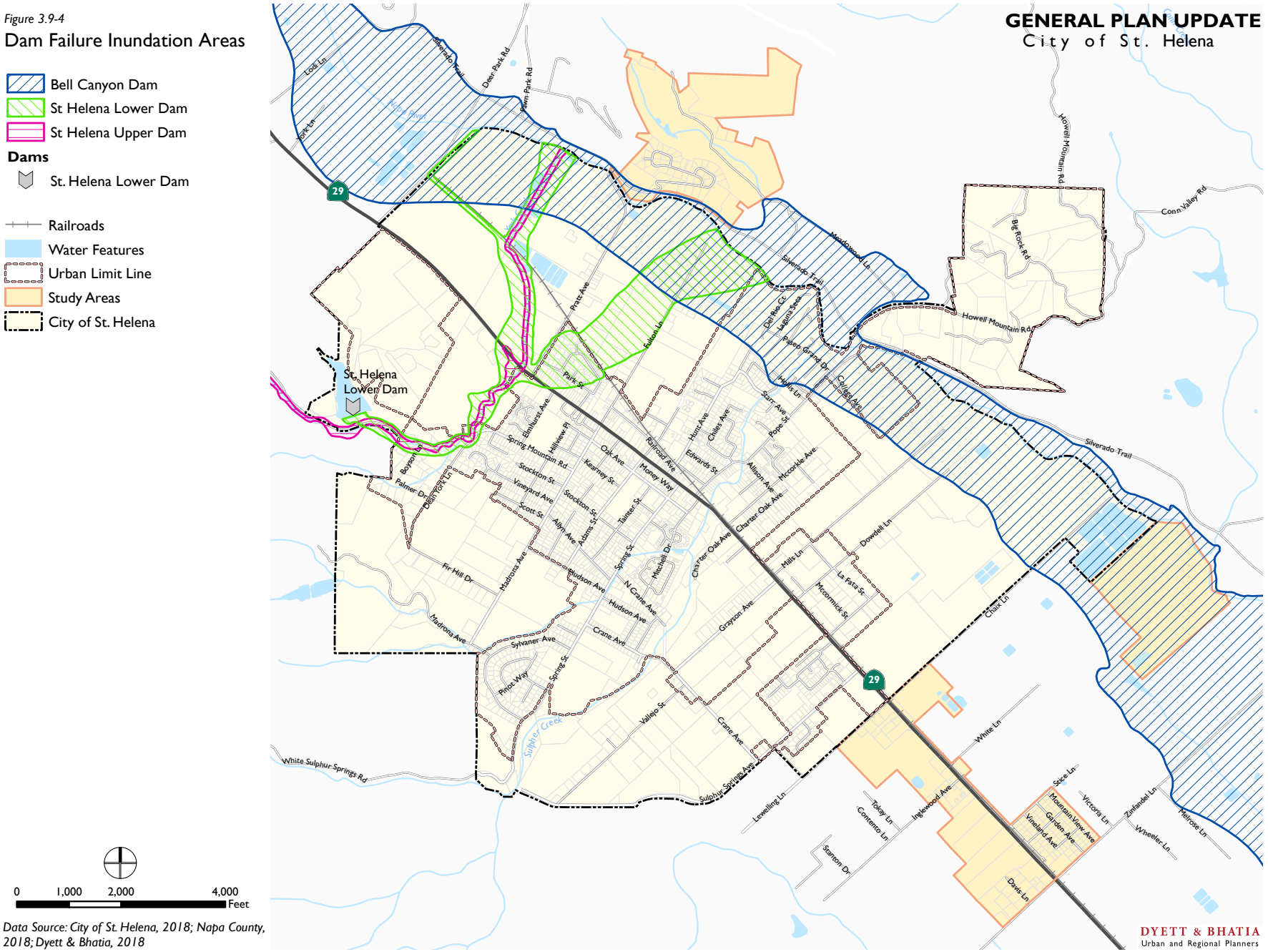
Dam and Levee Failure Inundation Zones

Areas subject to flooding from structural dam failure are determined by the California Office of Emergency Services. One dam, the St. Helena Lower Reservoir with approximately 230 acre-feet of storage, is located within the City of St. Helena (Figure 3.9-4). Portions of the City of St. Helena that are mapped as a dam failure inundation zone, including inundation from the Bell Canyon Reservoir located outside city limits, are shown on Figure 3.9-4 (City of St. Helena, 2018). Failure of the St. Helena Lower Reservoir or Bell Canyon Reservoir could severely affect people and structures in the general vicinity of the mapped inundation zone. As discussed above, the St. Helena Upper Reservoir is currently not used for water storage, and consequently there is no current flooding risk associated with the structural failure of the Upper Reservoir. The active dams are overseen by the California Department of Water Resources, Division of Safety of Dams (DOSD).

The levee constructed just above the confluence of Suphur Creek and the Napa River was designed to withstand a 200-year flood hazard (City of St. Helena, 2011). The project was completed in 2011, and while it is currently new and well maintained, there is some risk of flooding if storm events exceed a 200-year flood hazard or cause the levee to fail in the future.

Figure 3.9-4

Dam Failure Inundation Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Coastal and Bay Hazards

Sea Level Rise

Although climate change is expected to seriously alter the coastlines of the San Francisco Bay Area, St. Helena is located at approximately 250 feet of elevation and about 40 miles from the coast. Sea levels are continuing to rise at a rate of about one-eighth of an inch per year (NOAA, 2018) indicating that sea level rise is not likely to affect St. Helena in the foreseeable future.

Seiche

A seiche is a standing wave in an enclosed or partially enclosed body of water. Seiches have been observed in lakes, bays, and harbors, and can be triggered by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides.

Earthquake faults in the Bay Area such as the San Andreas Fault and the Hayward Fault, as well as active faults within Napa County such as the Green Valley, West Napa, Cordelia, and Hunting Creek faults, could produce ground shaking within the county. Seiches would be limited to the larger reservoirs in the county; however, the closest of these reservoirs to the Planning Area, Lake Barryessa and Bell Canyon Reservoir, are over two miles away.

Tsunamis

Tsunamis are long-period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would most likely originate west of the bay, in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. The California Department of Conservation's tsunami inundation zones maps show no risk of a tsunami affecting the Planning Area, or anywhere in Napa County north of the low-lying areas near San Pablo Bay (California Geological Survey, 2018).

Mudflows

Mudflows are landslides consisting of material that is wet enough to flow rapidly, and that contains at least 50 percent sand-, silt-, and clay-sized particles. Although the Planning Area is relatively flat, the United States Geological Survey (USGS) has classified two small areas on the eastern side of the Planning Area as historically having "Few Landslides" (as compared to no historic landslides in the remainder of the Planning Area) (see Figure 3.7-4: Landslide Susceptibility). Soils in this area are classified as Forward Gravelly Loam, Forward-Kidd Complex, Hambright-Rock Outcrop Complex, Aiken Loam, Pleasanton Loam, Bale Clay Loam, Felton Gravelly Loam, Maxwell Clay, and Cortina Very Gravelly Loam. Mudflows typically occur in small, steep channels and often occur simultaneously with flooding; there are few such channels within the Planning Area. Further information on landslide potential is provided in Section 3.7 of this EIR, Geology and Soils.

REGULATORY SETTING

Federal Regulations

Federal Clean Water Act (CWA) of 1972

The Clean Water Act (CWA) of 1972 is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands, and is administered by the EPA. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the primary regulatory tool of the CWA.

The following sections of the CWA are particularly relevant to the implementation of the General Plan Update:

- Section 303 — Water Quality Standards and Implementation Plans
- Section 401 — Dredge/Fill and Wetlands Certification Program
- Section 402 — National Pollutant Discharge Elimination System
- Section 404 — USACE Fill or Dredge Discharge Permits

With the exception of the 404 permits, the EPA has delegated its authority to implement and enforce the provisions of these sections to the individual states. In California, the provisions are enforced by nine Regional Water Quality Control Boards under the auspices of the State Water Resources Control Board. Additional information on the requirements imposed by CWA Sections 303, 401, and 402 is provided below.

CWA Section 402—National Pollutant Discharge Elimination System (NPDES) Program

CWA Section 402, enacted as an amendment to the original act in 1972, regulates construction-, industrial-, and municipal-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program provides for general permits and individual permits. In California, the State Water Resources Control Board is authorized by the EPA to oversee the NPDES program through the Regional Water Quality Control Boards via the Porter- Cologne Act, as described below.

Stormwater runoff can entrain pollutants from a variety of sources. Many types of human activity, including new construction projects, industrial activity, agriculture, and urbanization, can result in discharge of pollutants to surface waters. The NPDES program contains several sub-programs including: the construction, industrial, and municipal stormwater runoff programs, as discussed under "State Regulations," below. These programs could apply to projects and activities in the City of St. Helena.

CWA Section 303(d)—Total Maximum Daily Load (TMDL) Program

Section 303(d) of the CWA requires that the states make a list of waters that are not attaining water quality standards after the technology-based limits on point sources are put into place. For impaired waters on this list, the states must develop TMDLs. A TMDL is a written plan that describes how an impaired water body will meet water quality standards. The plan must which contain:

- A measurable feature to describe attainment of the water quality standard(s);
- A description of required actions to remove the impairment; and
- An allocation of responsibility among dischargers to act in the form of actions or water quality conditions for which each discharger is responsible.

A TMDL must account for all sources of the pollutants that caused the water to be listed. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (federally permitted discharges) and contributions from non-point sources (such as agricultural runoff). The impaired water body list and TMDLs must be approved by the EPA prior to adoption by the State Water Resources Control Board and Regional Water Quality Control Board.

CWA Section 401—Dredge/Fill and Wetlands Certification

Section 401 of the CWA grants each state the right to ensure that the state's interests are protected in any federally permitted activity occurring in or adjacent to "Waters of the State." If a proposed project requires a USACE CWA Section 404 permit, or involves dredge or fill activities that may result in a discharge to "Waters of the State," the project proponent is required to obtain a CWA Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill Projects) from the State Water Resources Control Board, to verify that the project activities will comply with state water quality standards. Section 401 of the CWA gives the State Water Resources Control Board the authority to consider the impacts of the entire project and require mitigation for volume, velocity, and pollutant load of the discharge from new outfalls to surface waters, when issuing certifications.

Federal Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage, and federally-backed lenders require development in Special Flood Hazard Areas to obtain obtain flood insurance. FEMA manages the NFIP, and creates Flood Insurance Rate Maps (FIRMs) that designate 100-year floodplain zones and delineate other flood hazard areas. A 100-year floodplain zone is the area that has a one in 100 (one-percent) chance of being flooded in any one year based on historical data, and defines the base flood level for a given area (see Figure 3.9-3: Flood Zones for flood hazard areas). FEMA standards further prohibit development in regulatory floodways, which are channels of rivers and streams and adjacent floodplains the must be reserved to discharge the base flood without increasing the water level, unless the project can demonstrate that the encroachment would not result in elevated flood levels (FEMA). Within the 100-year flood hazard area, FEMA allows development as long as the lowest finished floor (including the basement) is elevated to or above the base flood level per Section 60.3 of FEMA's Floodplain Management Criteria (FEMA). Relevant flood management requirements for the City of St. Helena are discussed under "Local Regulations."

State Regulations

Porter-Cologne Act and State Implementation of Clean Water Act Requirements

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Water Quality), promulgated in 1969, implements the federal CWA. It established the State Water Resources Control Board and divided the state into nine hydrologic regions, each overseen by a Regional Water Quality Control Board. The State Water Resources Control Board is the primary state agency responsible for protecting the quality of the state's surface water and groundwater resources, but much of its daily implementation authority is delegated to the nine Regional Water Quality Control Boards.

The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives to protect the beneficial uses of those waters. Basin Plans are primarily implemented through NPDES permits, waste discharge requirements, TMDLs, discharge prohibitions, and watershed management efforts. Basin Plans provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Act assigns responsibility for implementing the NPDES and Total Maximum Daily Load programs to the State Water Resources Control Board and the Regional Water Quality Control Boards. The Planning Area is located within the San Francisco Bay Basin Plan region.

Impaired Water Bodies and Total Maximum Daily Loads

The Napa River was included on the 2006 Clean Water Act (CWA) 303(d) list of water quality limited segments due to impairment from nutrients, pathogens, and sedimentation/siltation. Evaluation of the pathogen nutrient Total Maximum Daily Load (TMDL) has been completed by the San Francisco Bay Regional Water Quality Control Board (RWQCB) and the TMDL has been incorporated into the Basin Plan as an amendment. In 2014, the San Francisco Bay Regional Water Quality Control Board approved a proposal to delist the Napa River for nutrients resulting in excessive algae growth and to remove this water body from the EPA 303(d) list. The staff report detailing recent water quality assessments, lines of evidence, and interpretation of data is available for review on the San Francisco Bay RWQCB website. This delisting will be included in the Integrated Report submitted to U.S. EPA for the 2018 listing cycle.

The Basin Plan amendment includes water quality targets for pathogen indicators Escherichia coli (E. coli), fecal coliform, and total coliform, as well as density-based load limits for these pathogen indicators. The Basin Plan amendment also includes wasteload allocations for individual municipal dischargers including on-site sewage disposal systems, sanitary sewer systems, municipal stormwater runoff, grazing lands, and confined animal facilities.

The RWQCB also adopted a Basin Plan amendment incorporating a TMDL for sediment and a Habitat Enhancement Plan for the Napa River. The amendment includes numeric targets for spawning gravel permeability and streambed scour. The TMDL also includes load allocations (for non-point sources) for land areas upstream and downstream of dams, in addition to wasteload allocations for urban runoff and wastewater discharges. San Pablo Bay is on the 2006 Clean Water

Act (CWA) 303(d) list due to impairment from chlordane, DDT, dieldrin, dioxins and furans, exotic species, mercury, nickel, PCBs, and selenium. TMDLs in development include the PCB TMDL for San Francisco Bay (which includes San Pablo Bay), and the Selenium TMDL for the North San Francisco Bay (which includes a portion of the Sacrament/San Joaquin Delta, Suisun Bay, Carquinez Strait, San Pablo Bay, and the Central Bay).

The mercury TMDL for San Francisco Bay (which includes San Pablo Bay) has been completed and the Basin Plan amendment has been approved. The Basin Plan amendment includes numeric water quality objectives for mercury in fish tissue, and also includes load and wasteload allocations by source category, including urban stormwater and municipal wastewater.

In addition, the City of St. Helena is subject to the TMDL for diazinon and pesticide-related toxicity in all San Francisco Bay Area urban creeks, which was incorporated as a Basin Plan amendment in 2005. The TMDL imposes toxicity targets for urban creek water and sediment, and a diazinon concentration target for urban creeks. TMDL targets shall be achieved through regulatory programs, education and outreach, and research and monitoring. The TMDL attainment strategy will primarily focus on integrated pest management and the use of less toxic pest control methods. The U.S. Environmental Protection Agency (EPA) phased out urban diazinon applications at the end of 2004; however, replacements for diazinon (such as pyrethroids) may now pose potential water quality and sediment concerns.

Drinking Water Standards

Maximum contaminant levels (MCLs) are identified and are made enforceable regulatory standards under the federal Safe Drinking Water Act. Title 22 of the California Code of Regulations (CCR) outlines drinking water standards for California. MCLs must be met by all public drinking water systems to which they apply. At a minimum, surface water and groundwater with a designated beneficial use as domestic or municipal supply in the Basin Plan shall not contain concentrations of constituents in excess of the MCLs or secondary MCLs specified in Title 22, which are incorporated by reference into the Basin Plan.

Construction General Permit

Construction activities on one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Permit). To obtain coverage under the Construction General Permit, the discharger must provide via electronic submittal, a Notice of Intent, a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The permit also covers linear underground and overhead projects such as pipeline installations.

The Construction General Permit exercises a risk-based permitting approach and mandates certain requirements based on the risk level of the project (Level 1, Level 2, or Level 3). The risk level of the project is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a

sediment-sensitive receiving water, defined by the beneficial uses of the receiving water in the Basin Plan (e.g., cold freshwater habitat), a listing on the 303(d) list due to sediment impairment, or having a TMDL in place to address excessive sedimentation.

The performance standard in the Construction General Permit is that dischargers shall minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and management practices that achieve Best Available Technology (BAT) for treatment of toxic and non-conventional pollutants and Best Conventional Technology (BCT) for treatment of conventional pollutants. The permit also imposes numeric action levels (Level 2 and Level 3 projects) and numeric effluent limits (Level 3 projects) for pH and turbidity, as well as minimum Best Management Practices (BMPs) that must be implemented at all sites.

A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is to: (1) help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. BMPs must be overseen by a Qualified SWPPP Practitioner that meets the requirements in the permit. For Level 2 and Level 3 projects, the discharger must also prepare a Rain Event Action Plan as part of the SWPPP that must be designed to protect all exposed portions of the construction site within 48 hours prior to any likely precipitation event.

The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program will include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

Local oversight is provided by the RWQCB.

Industrial General Permit

Stormwater runoff from industrial sources and associated pollutants is regulated in California by the State Water Resources Control Board under the statewide General Permit for Stormwater Discharges associated with Industrial Activities (Water Quality Order No. 97-03-DWQ, General Permit No. CAS000001). The Industrial General Permit presents the requirements for compliance of certain industries with the NPDES program. A wide range of industries – including mining operations, lumber and wood products facilities, petroleum refining, metal industries, and some agricultural product facilities, such as dairies – are covered under the Industrial General Permit. Coverage is determined by Standard Industrial Classification (SIC) code. New industrial facilities with SICs requiring permit coverage are required to obtain coverage under the Industrial General Permit and comply with the permit requirements, which include preparation and implementation of a facility-specific SWPPP, monitoring, and annual reporting to the State Water Resources Control Board. Local oversight is provided by the RWQCB.

Municipal Stormwater Permit

California's municipal stormwater permitting program regulates stormwater discharges from municipal storm sewer systems (MS4s). MS4 Permits were issued in two phases. Under Phase I, which was initiated in 1990, the Regional Water Quality Control Boards adopted individual NPDES stormwater permits for medium municipalities (serving between 100,000 and 250,000 people) and large municipalities (serving 250,000 people). Most of these permits were issued to a group of co-permittees encompassing an entire metropolitan area. As part of Phase II, the State Water Resources Control Board adopted a statewide General Permit for the Discharge of Storm Water from Small MS4s (Water Quality Order No. 2003-0005-DWQ, General Permit No. CAS000004) (Phase II General Permit) to provide permit coverage for smaller municipalities, including non-traditional small MS4s such as military bases, public campuses, and prison and hospital complexes.

The City of St. Helena is regulated under the Phase II General Permit as part of the Napa County Stormwater Management Program; details are provided under "Local Regulations" below. Local oversight is provided by the RWQCB.

State Water Board Low Impact Development Policy

On January 20, 2005, the State Water Resources Control Board adopted the Low Impact Development (LID) Policy which, at its core, promotes the idea of "sustainability" as a key parameter to be considered during the design and planning process for future development. The State Water Resources Control Board has directed its staff to consider sustainability in all future policies, guidelines, and regulatory actions.

The sustainability practice promotes LID to benefit water supply and contribute to water quality protection. The Regional Water Quality Control Boards are advancing LID in California in various ways, including provisions for LID requirements in renewed Phase I municipal stormwater NPDES permits. The Phase II General Permit, includes additional LID requirements to achieve water quality goals and to protect against stream channel hydromodification.

Dam Inundation Mapping Requirement and Dam Oversight

Section 8589.5 of the California Government Code and Title 19 of the Code of Regulations, Sections 2575 to 2578.3 requires that dam owners submit flood routing information, land surveys to delineate the floodplain, and a technical report to support a dam failure inundation map to the California Office of Emergency Services. The purpose of the program is to provide decision support for emergency preparedness planning, mitigation, and response to and recovery from potential damage to life and property from dam inundation flood waves. Based upon approved inundation maps (or the delineated areas), cities and counties with territory in the mapped areas are required to adopt emergency procedures for the evacuation and control of populated areas below the dams.

The Lower Reservoir – the active dam with failure inundation zones within the City of St. Helena – and Bell Canyon Reservoir are overseen by the California Department of Water Resources, Division of Safety of Dams (DOSD). DOSD engineers and engineering geologists review and approve plans and specifications for the design of dams and oversee their construction to ensure

compliance with the approved plans and specifications. In addition, DOSD engineers inspect over 1,200 dams annually to ensure the dams are performing and being maintained in a safe manner.

California Assembly Bill 2140 (2006)

Assembly Bill 2140, enacted in September 2006, allows cities and counties to adopt a local hazard mitigation plan as part of the required safety element of the general plan. The hazard mitigation plan must include (1) an initial earthquake performance evaluation of public facilities that provide essential services, shelter, and critical governmental functions; (2) an inventory of private facilities that are potentially hazardous, including multi-unit, soft story, concrete tilt-up, and concrete frame buildings, and (3) a plan to reduce the potential risk to private and governmental facilities in the event of a disaster. Hazards mitigation plans are to include an evaluation of tsunami, seiche, and dam failure risks. Assembly Bill 2140 is not a mandate, and compliance is optional. Local jurisdictions that have not adopted a local hazard mitigation plan shall be given preference by the California Office of Emergency Services to receive FEMA funding to assist in developing such a mitigation plan. The City of St. Helena participates in the Napa County Operational Area Hazard Mitigation Plan, last updated in 2013.

California Assembly Bill 162 (2007)

Assembly Bill 162, enacted in October 2007, calls for flood safety planning to be better integrated into local general plans. Specifically, Assembly Bill 162 includes the following requirements related to flood risks:

- The land use element of the general plan must identify and annually review those areas covered by the general plan that are subject to flooding, as identified by floodplain mapping prepared by FEMA or the California Department of Water Resources.
- Upon the next revision of the housing element, on or after January 1, 2009, the conservation element of the general plan must identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.
- A city or county general plan must contain a safety element for the protection of the community from any unreasonable risks associated with the effects of seismically-induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic, geologic, and fire hazards.

To comply with AB 162, the Proposed Plan includes flood safety planning within the Public Health, Safety and Noise element.

California Assembly Bill 1739 (201)/ California Senate Bills 1168 & 1319 (2014))

These three bills are collectively known as the Sustainable Groundwater Management Act (SGMA). The act requires the formation of local ground water sustainability agencies that must assess conditions in local water basins and adopt locally-based ground water sustainability plans for basins that cannot demonstrate sustainable yields for at least ten years.

In response to the 2014 SGMA, Napa County prepared a Basin Analysis Report (Luhdorff & Scalmanini, 2016) to achieve alternate compliance with the law by analyzing subbasin conditions and demonstrating that the basin has operated within its sustainable yield over a period of at least 10 years. The Report helps to support the ongoing management of the subbasin's resources.

Local Regulations

Napa County Stormwater Pollution Prevention Program

The cities of Napa and St. Helena, the Town of Yountville, and the County of Napa formed the Napa County Stormwater Pollution Prevention Program (NCSPPP). These jurisdictions, including the City of St Helena, are regulated under Phase II General MS4 Permit, Order No. 2013-0001.

Together the NCSPPP works for implementing BMPs, measurable goals and timetables for implementation in five program areas – Public Education, Public Participation, Illicit Discharge Detection and Elimination, Construction Site Storm Water Runoff Control, and Post Construction Storm Water Management. Although the County of Napa and each of the cities and towns implement their own individual stormwater pollution prevention programs, the NCSPPP allows for coordination and consistency of approaches among the individual participants and documents their efforts in annual reports that are submitted to the Regional Water Quality Control Board.

St. Helena Water Neutral Policy for Development

The St. Helena Water Neutral Policy, established in 2011, requires that applicants must be water-neutral (from the City-delivered water system) through any combination of on-site water conservation measures, offsite retrofitting, and well water, and that water neutrality shall be demonstrated in a quantitative water analysis of the project. The analysis must consist of the calculation of the baseline existing demand, the proposed water demand, a comparison of the two and the proposed retrofits to achieve a zero water use increase from the proposed development. If onsite retrofits cannot achieve net zero increase, the developer shall identify offsite retrofits or pay an in-lieu fee. Developer responsibilities are detailed in Section 13.12 of the City Municipal Code.

St. Helena Municipal Code

The following provisions of the St. Helena Municipal Code are relevant to hydrology and water quality issues.

Title 13, "Public Services," includes Chapter 13.32, "Stormwater and Runoff Pollution Control Ordinance," which details requirements that consist of:

- Prohibiting illicit discharges to the stormwater conveyance system;
- Establishing minimum requirements for stormwater management, including source control requirements, to prevent and reduce pollution;
- Establishing requirements for development project site design to reduce stormwater pollution and erosion;

- Establishing requirements for the management of stormwater flows from development projects, both to prevent erosion and to protect and enhance existing water-dependent habitats; and
- Establishing standards for the use of off-site facilities for stormwater management to supplement on-site practices at new development sites.

Title 15, "Buildings and Construction," includes Chapter 15.52, "Flood Damage Protection." This chapter calls for minimization of public and private losses from flood conditions in specific areas through provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood- control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
- Ensure that potential buyers are notified that property is in an area of special flood hazard; and ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ordinance 06-8, Section 3 [part]: prior code Section 5B.3);
- Ensure that any construction within a 100-year flood hazard zone is built such that the lowest floor is elevated at least eighteen inches above the base flood elevation; and
- Prohibit encroachments in the regulatory floodway which could raise flood levels.

Title 16, "Subdivisions," includes Chapter 16.32, "Design Standards and Improvements" and includes the following provisions:

- Section 16.32.070, "Drainage," which requires stormwater runoff from the subdivision to be collected and conveyed by an approved storm drainage system. The storm drainage system shall be designed by a registered civil engineer for ultimate development of the watershed and shall be capable of collecting and conveying runoff generated by the ten-year flood. The system shall provide for the protection of abutting and off-site properties that may be adversely affected by any increase in runoff attributed to the development; off-site storm drain improvements may be required to satisfy this requirement. In addition, retention ponds, drainage swales and/or check dams may be required to reduce off- site peak storm flow generated by projects to the historic flow.
- Section 16.32.170, Minimum Subdivision Elevation," which prohibits new residential lots created by subdivision which will be subject to periodic inundation or overflow from storm drainage or floodwaters. The building floor elevations shall be not less than the minimum building floor elevation established by the floodplain regulations of the zoning ordinance.

Title 17, "Zoning," includes:

- Section 17.88.030, "Subdivisions," which requires that all subdivision proposals and other proposed new developments be reviewed by the City engineer to assure that (1) all such proposals are consistent with the need to minimize flood damage; (2) all public utilities and facilities, such as sewer, gas, electrical and water systems are located, elevated, and constructed to minimize or eliminate flood damage; and (3) adequate drainage is provided so as to reduce exposure to flood hazards.
- Section 17.88.040, "Utilities," which requires that new or replacement water supply systems and/or sanitary sewer systems be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into flood waters, and on-site waste disposal systems shall be located so as to avoid impairment of them or contamination from them during flooding. (Prior code Section 27.168).
- Section 17.88.050, "FEMA Requirement," which requires that new construction or replacement of existing construction be in conformance with the standards and regulations of the Federal Emergency Management Agency (FEMA). (Prior code Section 27.169).

City of St. Helena Stormwater Management Standards (Construction and Post-Construction Standards)

The City of St. Helena has developed stormwater management standards to comply with the Phase II General Permit that apply to discretionary and ministerial projects submitting an application for a use permit, building permit, and/or grading permit (City of St. Helena, 2005a). The standards include both a construction and post-construction review and permitting process implemented by the St. Helena Public Works Department.

Construction-Phase Erosion Control Plans and Storm Water Pollution Prevention Plans

If a project is subject to construction-phase requirements, the applicant must prepare an Erosion Control Plan (ECP) for sites of less than one acre and a Storm Water Pollution Prevention Plan (SWPPP) for sites of one acre or more. The plans must depict BMPs that will be implemented during construction to eliminate or minimize the discharge of pollutants.

For projects with slopes of less than 15 percent, any person may prepare ECPs or SWPPPs. For projects with steeper slopes, however, only persons specified in the standards (e.g., a licensed civil engineer, a certified erosion and sediment control specialist) may prepare the documents. Prior to obtaining a building or grading permit, applicants with projects disturbing one or more acres must provide a copy of the Waste Discharge Identification Number issued for coverage under the Construction General Permit.

Grading deadlines in the standards mandate that clearing of vegetation, grading, and/or any other soil-disturbing activities shall only occur between April 15th and October 15th of any given year. Erosion and sediment control measures shall be fully implemented by October 15th of each year and maintained through April 15th. In addition, when the ECP/SWPPP requires installation of

sediment retention devices, these devices must be installed and functional no later than October 1st of that year.

The City's Public Works Department conducts site inspections to evaluate the effectiveness of the construction-phase BMPs using the following performance standards:

- No measurable increase of pollution (including but not limited to sediment, concrete and stucco, automotive fluids, hazardous materials, and pathogens) in runoff from the site;
- No slope erosion; and
- Water velocity moving offsite must not be greater than pre-construction levels.

Post-Construction Stormwater Runoff Management Plans

In order to comply with the Phase II General MS4 Permit, the City has adopted the Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual to regulate and provide design guidance to projects within the City. All projects within the City must comply with the BASMAA Manual, which uses a tiered approach to implement low impact development principles on all projects that create or replace 2,500 square feet or more of impervious surface.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Violate any water quality standards or waste discharge requirements;**

Criterion 2: **Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);**

Criterion 3: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;**

Criterion 4: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;**

Criterion 5: **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;**

Criterion 6: **Otherwise substantially degrade water quality;**

Criterion 7: **Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;**

Criterion 8: **Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or**

Criterion 9: **Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow.**

METHODOLOGY AND ASSUMPTIONS

All project elements were analyzed by comparing baseline conditions, as described in the Physical Setting section, to conditions during construction and/or operation of the Proposed Plan. The analysis focused on issues related to surface hydrology, flood hazards, groundwater supply, and surface and groundwater quality. The key construction-related impacts were identified and evaluated qualitatively, based on the physical characteristics of St. Helena and the magnitude, intensity, location, and duration/frequency of activities. This analysis of hydrologic and water quality impacts is based on a determination of the potential for water quality degradation and individual project or cumulative projects potential to cause increased erosion, sedimentation, and adverse conditions associated with changes to stormwater runoff attributable to implementation of the Proposed Plan, with consideration of legally-mandated requirements for protecting water quality. The resultant effects can only be generalized relative to the significance criteria to determine if the project would result in significant impacts and if mitigation measures would be warranted.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to hydrology and water quality in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to hydrology and water quality in the study areas. Cumulative impacts related to hydrology and water quality are discussed in Chapter 5: CEQA Required Conclusions.

Surface Water Hydrology

The surface water hydrology impact analysis considers potential changes in the physical characteristics of water bodies, impervious surfaces, and drainage patterns throughout the City of St. Helena as a result of the Proposed Plan's implementation.

Groundwater Hydrology

Impacts on groundwater supply and recharge are assessed by comparing existing groundwater use and recharge capabilities with project conditions. Recharge is determined by the ability of water to infiltrate into the soil.

Water Quality

Impacts of the Proposed Plan on surface water and groundwater quality were analyzed by comparing existing water quality conditions and potential project water quality conditions. Potential project-related sources of water contaminants generated by residential, office, and industrial project operational activities, such as vehicle use, building maintenance, pesticide use, trash generation, and the storage or inadvertent release of hazardous materials during project construction, are considered. The potential for water quality objectives to be exceeded and beneficial uses to be compromised is also considered.

Flooding

The flood risk analysis uses FEMA data and historical flood information to determine the existing flood zone and whether the project area overlaps designated 100-year floodplains, whether it would affect the drainage system, and whether it was a flood risk. Pursuant to the recent Supreme Court case decision in California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal. 4th 369, Case No. S213478, CEQA does not require an analysis of how existing environmental conditions will affect a project's residents or users unless the project would exacerbate an existing environmental hazard. Accordingly, hazards resulting from a project that places development in an existing or future flood hazard area are not considered impacts under CEQA unless the project would exacerbate the flood hazard. Thus, the analysis evaluates whether the project would exacerbate existing or future flood hazards in the City of St. Helena, resulting in a substantial risk of loss injury or death. If evidence indicates it would not, then the analysis will conclude by stating such. If it would potentially exacerbate the issue, then evidence is provided to determine if the exacerbation would or would not be significant.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Community Design Element

- ***CD1.5.*** Require stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques such as bioswales and other best management practices to manage stormwater (Also see the Open Space and Conservation Element, Topic Area 3).
- ***CD1.B.*** Adopt a Green Building and Landscaping Ordinance that establishes green building and landscaping site design standards customized to meet the unique climatic context of the community. Landscaping standards should limit impervious paving and identify standards and incentives that encourage the use of locally-propagated native, low-water, drought-tolerant planting and integrated pest management practices.
- ***CD3.1.*** Limit building envelope sizes and require adequate side and rear setbacks to preserve the character of existing residential areas and to avoid overbuilt lots. Require future development to conform to the pattern and density of the neighboring areas in

order to complement existing town character and protect against incursion into vineyard agricultural areas.

- ***CD3.B.*** Review the existing ordinance language limiting lot coverage/floor area ratio according to parcel size in residential areas in order to preserve neighborhood character, reduce adverse view and shade impacts on existing homes, improve groundwater infiltration, and avoid overbuilt conditions. At the same time, care needs to be taken that any ordinance revision does not impair the ability to build second units on existing lots where appropriate.
- ***CD4.2.*** Integrate open space, including parks, community gardens, natural areas and agriculture into the community to strengthen the connection to St. Helena's agricultural heritage and provide a sense of openness.

Land Use and Growth Management Element

- ***LU1.1.*** Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building and stormwater management and paying its share of development impact fees, while minimizing impacts on sewer, water, energy and natural resources.
- ***LU1.2.*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on agricultural lands. Urban services, such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line.

Open Space and Conservation Element

- ***OS1.1.*** Preserve and enhance St. Helena's riparian corridors for their value in providing wildlife habitat, biodiversity, natural drainage and visual amenity.
- ***OS1.A.*** Develop and adopt an ordinance for the protection, restoration and enhancement of creek corridors. The ordinance should consider the following:
  - Establish setbacks for all new development projects to protect stream function and riparian habitat, while allowing for limited recreational uses and access to the stream corridor for maintenance and flood control.
  - Limit use of herbicides and insecticides associated with aquatic toxicity in areas near and adjacent to creeks, and ensure best environmental management practices for all developments and industries;
  - Provide access for creek maintenance and public use through easements and cooperative agreements with landowners;
  - Establish sufficient buffer width adjacent to waterways to allow for wildlife habitats, trails and greenbelts;
  - Adhere to Living River Principles that allow the river to meander, maintain its natural floodplain and retain natural channel features to support continuous fish migration and the health of riparian corridors; and

  - Encourage the use of bioswales, off-stream detention ponds and other green best practices for stormwater management.
  - Implement an Integrated Pest Management ordinance that includes provisions to minimize the reliance on pesticides that threaten water quality and to require the use of integrated pest management in municipal operations; and.
  - Incorporate relevant actions and performance standards in TMDL implementation strategies for the Napa River to control discharges of pathogens and sediment.

- ***OS1.B*** Restrict development on open space-designated parcels along Sulphur Creek west of the Crane Avenue Bridge. All development must be outside the stream corridor and structures must be set back from the creek's edge, consistent with California Department of Fish and Game standards.
- ***OS1.D*** Coordinate with the County, the California Department of Fish and Game, and other regional agencies to augment water flow in the Napa River and its tributaries in order to enhance year-round fish habitat and minimize stagnation and pollution.
- ***OS1.H.*** Require all proposed projects adjacent to a creek corridor or located in the city's hillside areas to submit a management plan for protecting natural habitats, including provisions to:
  - Employ supplemental planting and maintenance of grasses, shrubs and trees of similar quality and quantity to provide adequate vegetation cover to keep the watersheds on steep slopes and along streams in good condition, and to provide shelter and food for wildlife.
  - Provide protection for wildlife habitat.
- ***OS1.I.*** Require new development to be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of natural plants and sensitive wildlife habitat.
- ***OS1.L.*** Discourage removal of trees for agricultural or other development in hillside areas. Ensure Woodlands and Watershed restrictions are followed.
- ***OS1.N.*** Conduct a study to determine if the build-up of gravel in Sulphur Creek will result in a high risk of flooding. Limit development in Flood Hazard Areas using FEMA's 100-year flood zone regulations at a minimum, and inform property owners of existing developments so they are aware of flood risks and available State and federal insurance opportunities. Ensure that implementation measures contribute positively to the preservation of the creek and its corridor.
- ***OS2.3*** Preserve open space for recreational uses, including a bicycle and pedestrian trail system along creek corridors when compatible with riparian vegetation and wildlife habitat. Where possible, integrate stream corridors with trails and other recreational open space, provided that the vegetation, habitat value and water quality is not significantly impacted.
- ***OS2.6.*** Support floodplain management strategies that ensure adequate open space for flood management consistent with Living River Principles, FEMA and State requirements

at a minimum. (Also see the Public Health, Safety and Noise Element for additional policies and implementing actions relating to flood management).

- ***OS3.1.*** Promote stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques to best manage stormwater through conservation, on-site filtration and water recycling, and ensure compliance with the National Pollution Discharge Elimination System (NPDES) permit.
- ***OS3.2*** Reduce stormwater runoff in developed areas to protect water quality in creeks. Incorporate sustainable low impact design features in the design of infrastructure.
- ***OS3.A*** Manage stormwater runoff in compliance with the City's Stormwater and Runoff Pollution Control Ordinance, Stormwater Management Standards for Construction and Post-Construction, and the Development Manual Stormwater Standards, to ensure compliance with the City's NPDES permit. Implement a surface water quality monitoring program to evaluate the effectiveness of stormwater management program activities in reducing the discharge of pollutants to receiving waters to the maximum extent practicable.
- ***OS3.B***. Prevent water pollution from point and non-point sources, including runoff from agriculture through implementation of City adopted Best Management Practices in applicable permits, Total Maximum Daily Load (TDML), and the Plan for California's Nonpoint Source Pollution Control Program. Continue to adopt new and more effective and efficient best practices and programs.
- ***OS3.C*** Minimize stormwater runoff and pollution by encouraging low impact design features, such as pervious parking surfaces, bioswales and filter strips in new development projects. The City should be a model for incorporating low impact design elements as it implements streetscape and landscape improvements. In addition, the City should retrofit the existing public landscape with natural vegetative coverings and drainage systems that promote infiltration into the ground that can help detain stormwater and reduce pollution attributable to runoff.
- ***OS3.D*** Maintain the City's water management program for implementing water conservation efforts for households, businesses, industries, public infrastructure and agricultural activities. This program should include the following measures:
  - Identify building, plumbing and landscape standards and technologies that conserve water especially during water shortages;
  - Implement standards that require low-flow appliances and fixtures in all new developments; and
  - Encourage and model the use of drought tolerant and native plants in landscaping.
- ***OS3.E.*** Promote the installation of drought tolerant and native plants in landscaping throughout the city. Potential measures include:
  - An education program that details water conservation measures for the use in local landscaping;

  - Working with local nurseries to encourage education, demonstration and sales of drought tolerant and native plants and water-wise irrigation systems. (Also see the Public Facilities and Services Element for additional policies and implementing actions relating to water conservation);
  - Require City parks and properties to be landscaped with drought tolerant native plants that allow for high shade capacity whenever possible and use water-wise irrigation systems as a model for residents and businesses.

- ***OS3.F.*** Provide appropriate permitting documents for project applicants requiring coverage under the Statewide National Pollutant Discharge Elimination System (NPDES) General Construction and Industrial Permits.
- ***OS4.E.*** Explore a citywide education opportunity for residents, businesses, industries and agricultural uses to obtain information on pollution prevention, disposal of hazardous waste and chemicals, liability and clean-up.

Public Facilities and Services Element

- ***PF1.D*** The City of St. Helena should not draw or sell any groundwater beyond that currently allowed until a safe yield of the groundwater system has been identified through a study of the North Main Basin Aquifer by a qualified hydro geologist.
- ***PF1.E*** Permit no new development relying on groundwater unless and until it is determined that the incremental production of ground water to support the development will not adversely impact the water production capability of the aquifer supporting the City wells.
- ***PF1.F*** Track the drilling of new private wells in and around St. Helena and, if so recommended by the qualified hydrologist hired by the City's water system, request that the County impose a moratorium on new well drilling if needed to protect the production capability of the City wells.
- ***PF2.C.*** Urban services such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line. Exceptions will be permitted when undue hardship can be demonstrated, and when proposed improvements are not found to induce growth.
- ***PF3.1.*** Ensure that new developments provide adequate drainage improvements and detention to mitigate flooding from increased stormwater runoff attributable to the development.
- ***PF3.2.*** Ensure that encroachments into the 100-year floodplain do not result in any increase in flood levels during the occurrence of the base flood discharge.
- ***PF3.3.*** Improve York Creek channel capacity in flood-prone areas through removal of channel-obstructing gravel bars and vegetation.
- ***PF3.A.*** Require developers to provide adequate drainage improvements and detention to mitigate storm runoff from the site to the nearest major waterway. Drainage improvements can include measures such as creating settling basins, bio-swales and the use of pervious materials for driveways and parking areas. Key waterways include York Creek, Sulphur Creek and the Napa River.

- ***PF3.C.*** Consistent with Municipal Code Section 16.32.170, continue to prohibit the creation of new residential lots that will be subject to periodic inundation from floodwaters. New development proposals on existing lots of record must identify flood hazard areas and mitigate all impacts to base flood levels and potential flood damage from grading filling and construction through proper drainage, construction, and location of utilities, in accordance with FEMA requirements.
- ***PF3.D.*** Update the City's Stormwater Master Plan to include changes and upgrades since the last plan and to help streamline the approval process.
- ***PF3.E.*** At the time of development review, require that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval (See also Climate Change Element, Topic Area 4).
- ***PS5.1.*** Minimize the risk to people, property and the environment caused by flooding hazards. Site new development to minimize potential damage from a 100-year flood. Continue to require that any new development is constructed to FEMA standards. Prohibit the siting of uses within Flood Hazard Areas inconsistent with FEMA standards that could result in health and safety hazards, including those due to the release of chemicals or other substances as a result of inundation or erosion. Ensure that any new flood protection projects comply with State Department of Water Resources (DWR) standards.
- ***PS5.2.*** Ensure that new development or existing lots of record within the 100-year floodplain are properly graded sited, and constructed to mitigate flood effects and do not cause increases or expansion of the flood area that increase flood risk.
- ***PS5.3.*** Within the 100-year floodplain, encourage open space uses, such as parks or natural areas.
- ***PS5.4.*** Ensure that construction of flood barriers does not adversely affect natural floodplains, stream channels and natural barriers that help accommodate or channel flood waters.
- ***PS5.5.*** Prohibit new development within areas designated as Floodway in the current FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM).
- ***PS5.A***. Coordinate with the County Flood Control District to ensure that stream channels are routinely cleared of vegetation and debris which could impede stormwater flows, while protecting riparian habitat.
- ***PS5.B.*** Require developers with land adjacent to the Napa River to construct or contribute a fair share toward the construction of necessary flood control improvements.
- ***PS5.C.*** Strengthen and enforce regulations that prohibit the dumping of litter, fill and waste materials into creeks and waterways. Educate the public about flooding and health hazards associated with these activities.
- ***PS5.E*** Prohibit the introduction of urban development in designated Floodway zones.
- ***PS5.F*** Review Municipal Code Chapter 15.52, Flood Damage Prevention, to ensure that regulations reflect best practices. Periodically update the City's flood hazard regulations in accordance with FEMA/NFIP regulations.

- ***PS6.1*** Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters.
- ***PS6.A*** Maintain and periodically update the City's Emergency Response Plan.
- ***PS6.C*** Continue to collaborate with regional agencies and neighboring jurisdictions to develop and implement a regional emergency coordination plan and agreement for police, fire and emergency medical services.

IMPACTS

Impact 3.9-1 Development under the Proposed Plan would not violate any federal, state, or local water quality standards or waste discharge requirements. (*Less than Significant*)

The Proposed Plan would have a significant environmental impact if it would violate water quality standards and waste discharge requirements set out in NPDES Permit CA0038016, issued to the City of St. Helena's Wastewater Treatment and Reclamation Plant, or the Phase II General Permit for Discharge of Storm Water from Small MS4s NPDES Permit in force for Napa County, of which the City of St. Helena is a member agency. Violation could occur if the Proposed Plan would substantially increase pollutant loading levels in the sanitary sewer system, either directly, through the introduction of pollutants generated by industrial or other land uses, or indirectly, through stormwater pollution.

According to the terms of NPDES permit CA0038016, the City's Department of Public Works implements and enforces a pretreatment program for effluent discharged into the Napa River. The City also complies with the RWQCB Monitoring and Reporting Program. The Proposed Plan would primarily involve construction and operation of residential and commercial uses and would involve few industries likely to substantially increase pollutant loading levels in the sanitary sewer system. Any new industrial uses would have to comply with the Industrial General Permit, as described in the Regulatory Setting section, above.

Additionally, in compliance with the SWRCB Construction General Permit, a SWPPP would be prepared for any projects resulting from the Proposed Plan, detailing the methods for preventing the pollution of stormwater with sediment, petrochemicals, or other pollutants associated with construction activities or equipment. Further, implementation of Phase II Municipal Stormwater NPDES Permit BMPs described below in Impacts 3.9-3 and 3.9-4, including construction of bio-retention areas, would provide natural filtration of stormwater, reducing the volume of contaminants entering the City's storm sewer system.

Several policies in the Proposed Plan would also ensure that federal, State, and local water quality standards and waste discharge requirements are met. The Proposed Plan would require compliance with the City's NPDES stormwater municipal permit discussed above, requiring full implementation of stormwater BMPs to reduce pollutants in stormwater runoff to the maximum extent practicable (LU1.1, CD1.5, OS3.1, OS3.2, OS1.A, OS3.A, and OS3.C). It would promote preservation of open space and existing vegetation and require development setbacks, use of drought-tolerant and native plants, and proper use of pesticides and herbicides and reduce the construction of impervious surfaces (CD4.2, OS1.1, CD1.B, CD4.A, OS1.B, OS1.C, OS1.H, OS1.L,

OS3.D, OS3.E and OS3.F). These policies and actions would reinforce and strengthen federal, State, and local requirements.

Therefore, development of the Proposed Plan would not violate established water quality standards or waste discharge requirements and the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.9-2 Development under the Proposed Plan would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted). (*Less than Significant*)

Groundwater table stability is a balance between how much water infiltrates the aquifer and how much water is drawn out. From 2011 through 2015, groundwater drawn from the Napa Valley Subbasin accounted for about 18 percent of St. Helena's total water supply (Luhdorff & Scalmanini, 2016). The remainder is sourced from the local surface water at Bell Canyon or purchased from the City of Napa, as discussed in Chapter 3.14: Utilities and Service Systems of this EIR. Despite the about 700 new residents and 900 new jobs projected at buildout by the Proposed Plan, additional water would not be acquired from the groundwater supply. The City of St. Helena's 2006 Master Water Plan, in making sourcing projections for future growth, maintains consistent groundwater supplies while increasing purchases of surface waters from the City of Napa (City of St. Helena, 2006, pp. 3-4). Further, due to the 2011 implementation of the St. Helena Water Neutral Policy for Development, the Proposed Plan is not expected to result in a growth in total water demand, as new development is required to offset new demand with water conservation retrofits of existing facilities, or in-lieu payments to the City to carry out such retrofits.

The California SGMA of 2014 requires local authorities to achieve sustainable management of groundwater basins. Napa County prepared a Basin Analysis Report demonstrating that the groundwater basin has been operating within a sustainable yield for the past ten years, achieving compliance with the SGMA. The Napa Valley Subbasin Basin Analysis Report demonstrated that the basin has operated within its sustainable yield over a period of more than 20 years. Stable groundwater levels observed during recent drought conditions (from 2012 through 2015) suggest that recent rates of groundwater pumping have not exceeded the sustainable yield of the subbasin. The sustainable yield analysis establishes the maximum amount of water that can be withdrawn annually from the subbasin groundwater supply without causing an undesirable result: approximately 17,000 AFY to 20,000 AFY. Groundwater pumping averaged about 18,000 AFY during the 2012 to 2015 drought (Luhdorff & Scalmanini, 2016). Continued compliance with the SGMA legislation, by regularly demonstrating that the basin is not overdrafted, ensures that the groundwater draws will be carefully managed and sustainably used, and that the Proposed Plan will not substantially deplete groundwater supplies from increased demand.

Further, existing regulations would ensure that overall infiltration into the aquifer would remain robust, including LID techniques to capture and infiltrate stormwater runoff, consistent with BASMAA Manual, St. Helena Municipal Code required compliance with NPDES permitting, other City of St. Helena MS4 requirements, and/or General Waste Discharge Requirements, as applicable. Further, policies in the Proposed Plan would require LID techniques to manage stormwater, limit building envelope sizes and lot coverage, and promote open space, bioswales, detention ponds, and landscaped buffers, which would reduce the amount of impervious area associated with new development that could adversely affect groundwater recharge (CD1.5, CD3.1, CD3.B, CD4.2, LU1.1, and OS1.A). Additional policies would limit the use of groundwater to support new development, including ensuring that groundwater draws are within safe yield guidelines, ensuring that new groundwater draws will not adversely local aquifer water production capabilities, and tracking new private wells to protect groundwater production (PF1.D, PF1.E, and PF1.F). With implementation of these requirements, development under the Proposed Plan would not result in a substantial adverse change in impervious surface area or groundwater infiltration.

Overall, compliance with existing federal, State and local programs and regulations and implementation of the BMPs discussed above would ensure that impacts related to substantial decreases in groundwater supply or substantial interference with groundwater recharge from implementation of the Proposed Plan would be less than significant.

Mitigation Measures

None required.

Impact 3.9-3 Development under the Proposed Plan would not substantially alter the existing drainage pattern of the City of St. Helena, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site. (*Less than Significant*)

The Planning Area is already largely built out, and implementation of the Proposed Plan would primarily involve redevelopment of previously developed sites with residential, commercial, and public uses compatible with existing development in the area. As such, the Proposed Plan would not substantially alter the existing drainage pattern of the City of St. Helena.

While under construction, projects developed under the Proposed Plan could involve excavation and disturbance of existing ground surface, exposing base soil and temporarily altering surface drainage patters. York Creek, Sulphur Creek, and the Napa River all run through the Planning Area, and the Proposed Plan would incentivize new construction in some parcels near these waterways, risking erosion and siltation impacts if stormwater is not properly managed. However, each individual project would be required to develop and implement a SWPPP with erosion and sediment control BMPs as required by the State's Construction General Permit and MS4 Permit regulations. Standard erosion and sediment control measures and other housekeeping BMPs, such as vehicle and equipment maintenance, material delivery and storage, and solid waste management, would be identified in the SWPPP. BMPs included in the SWPPP would represent the best available, economically achievable technology, and the best conventional pollutant control technology to reduce pollutants. These measures would be identified for each individual project and implemented during construction to reduce contamination and sedimentation in waterways.

The SWPPP would also include a range of stormwater control BMPs (e.g., installing silt fences, staked straw wattles, or geofabric to prevent silt runoff to storm drains or waterways); requirements for the stockpiling, protection, and replacement of topsoil and backfill at the conclusion of construction activities; and requirements for revegetation of turf, plants, and other vegetation upon completion of construction. Projects disturbing less than an acre of ground surface during construction would not be required to prepare a SWPPP, but would be required to implement the construction site control BMPs required by the City of St. Helena's Phase II Small NPDES permit (MS4). Projects would also be subject to requirements of the Construction General Permit, the City's Stormwater Management Standards for construction activity, and the City's grading requirements, as applicable. With implementation of erosion and sediment control BMPs, project construction activities would result in less than significant erosion, siltation, and flooding impact during project construction activities.

While in operation, if future individual projects create or replace 2,500 square feet or more of impervious surface, they would be required to comply with the BASMAA Post-Construction Manual (BASMAA, 2014), part of the City of St. Helena's Phase II Small MS4 General Permit compliance. The BASMAA Manual requires eligible projects to complete a Stormwater Control Plan, including adequately-sized bioretention facilities, and a Stormwater Facilities Operation and Maintenance Plan. These plans require applicants to maximize LID techniques at their projects. Through compliance with the Phase II MS4 Permit, the projects implemented within the City of St. Helena would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Policies and actions of the Proposed Plan would provide additional safeguards: required drainage improvements would adequately mitigate for erosion and siltation (PF3.A), inclusion of low impact development and other stormwater BMPs into development projects, facilitating natural drainage, preserving open space, requiring development setbacks, and maintaining and adding vegetation adjacent to creek corridors, all of which would reduce or prevent substantial erosion or siltation (CD1.5, OS3.1, OS3.2, OS1.A, OS1.B, OS1.H, OS1.I, OS1.L, OS3.A, OS3.B, and OS3.C).

Therefore, compliance with applicable federal, State, and local programs and regulations and implementation of BMPs discussed above would ensure that risks associated with substantial alteration of the existing drainage pattern of the City of St. Helena in a manner which would result in substantial erosion, siltation, or flooding on- or off-site would be reduced to the maximum extent practicable and would be less than significant.

Mitigation Measures

None required.

Impact 3.9-4 Development under the Proposed Plan would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (*Less than Significant*)

Buildout of the Proposed Plan is expected to generate a small increase in impervious surfaces with the development of up to 300 new housing units and up to 900 new jobs in manufacturing,

agriculture, retail, and the service industries. Although the Planning Area is already largely developed, implementation of the Proposed Plan would likely add some new impervious surfaces to the community, including sidewalks, pathways, parking areas and similar improvements. Unless properly treated, runoff from these surfaces could include various pollutants, such as asbestos, oils, solvents and other pollutants that could be transported to local creeks and ultimately the Napa River. By implementing these long-term changes to streetscapes and pedestrian walkways, increasing parking spaces, and otherwise introducing new impervious surfaces, implementation of the Proposed Plan could create or contribute polluted runoff.

However, any new development resulting from the proposed plan would be required to comply with the BASMAA Manual's design guidance for stormwater treatment, as required by Napa County's Phase II Small MS4 General Permit. These stormwater treatment guidelines would require new development within the City of St. Helena to detain storm runoff with bioretention facilities, minimize surface flow velocities, and make use of all applicable LID techniques. New development, during both construction and operations phases, would be required to comply with the City of St. Helena's Stormwater Management Standards, which require the preparation of a SWPPP and implementation of BMPs to mitigate risks of polluted runoff.

In addition, new inputs to the stormwater drainage system must comply with Title 16 of the Municipal Code, which requires a new stormwater drainage system to be designed by a registered civil engineer for ultimate development of the watershed, to convey runoff generated by the ten-year flood. Per Title 16, the stormwater drainage system must also be designed to provide for the protection of abutting and off-site properties, and off-site storm drain improvements may be required to satisfy this requirement. In addition, under Title 16, retention ponds, drainage swales, and/or check dams may be required to reduce the off-site peak storm flow that projects contribute to the historic flow.

Policies and actions in the Proposed Plan would further mitigate risk of polluted runoff. The Proposed Plan would require coordination with various agencies to augment the flow in the Napa River to minimize pollution (OS1.D), provide outreach to residents, businesses, industries, and agricultural uses on water quality pollution prevention (OS4.E), require the City to prevent water pollution from both point sources (such as stormwater runoff from developments) and non-point sources including agricultural runoff, (Implementing Action OS3.B), and direct the City to continue to comply with the NPDES permit requirements (OS3.A).

As discussed in Impact 3.9-3 above, other policies and actions would require new development to provide adequate drainage improvements and development setbacks and to incorporate stormwater BMPs, which would reduce peak flow rates and stormwater runoff volumes from smaller, more frequently occurring storms (CD1.5, LU1.1, OS1.1, OS1.A, OS1.B, PF3.1, PF3.4, PF3.A, and PF3.E). Projects would be required to show that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval (PF3.E). Extending stormwater drainage system utilities to the Urban Limit Line and updating the City's Stormwater Master Plan would ensure that the storm drain system has adequate capacity to convey storm flows without flooding, accounting for existing and future land uses and development (LU1.2, PF2.C, and PF3.D). The Proposed Plan would also promote preservation of open space and existing vegetation and require development setbacks, use of drought-tolerant and native plants, and proper use of pesticides and herbicides and seek to limit the use of impervious paving

(CD4.2, CD4.A, CD1.B, CD4.A, OS1.1, OS1.B, OS1.H, OS1.L, OS3.D, and OS3.E). Open space conservation reduces impervious area, which may reduce stormwater pollutants. Use of native plants would improve water quality by reducing pesticide and fertilizer use and reducing irrigation requirements, which would reduce the volume of dry weather nuisance flows into the stormwater drainage system and/or receiving waters. Further, maintaining creek corridors and adhering to Living River Principles would help to maintain the natural hydrologic function of creeks, which can capture and sequester pollutants within vegetation and prevent downstream contamination in the San Francisco Bay (OS1.A, OS1.C, and OS1.N).

With continued compliance with the existing federal, State, and local regulations identified above, and with implementation of the policies and implementing actions of the Proposed Plan, projects within the City of St. Helena would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site or generate substantial polluted runoff. Therefore, the impact of the Proposed Plan as related to increased runoff would be less than significant.

Mitigation Measures

None required.

Impact 3.9-5 Development under the Proposed Plan would not substantially degrade water quality. (*Less than Significant*)

As discussed in Impacts 3.9-3 and 3.9-4, construction and operational activities associated with implementation of the Proposed Plan would not violate water quality standards because specific projects developed under the Proposed Plan would be required to implement the NPDES requirements, Phase II Small MS4 Permit, for post-construction stormwater management including LID techniques. Construction activities would be required to comply with the City of St. Helena Stormwater Management Standards, implementing SWPPPs and BMPs to reduce impacts on water quality. These requirements would require stormwater runoff retainment onsite through the implementation of site design BMPs that would be maintained throughout development operation. Compliance with these requirements, along with adherence to applicable policies contained in the Proposed Plan, would prevent degradation of surface water quality from runoff in the City of St. Helena, and downstream water quality would be maintained. Therefore, the Proposed Plan would result in a less than significant impact associated with degrading water quality.

Mitigation Measures

None required.

Impact 3.9-6 Development under the Proposed Plan would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. (*Less than Significant with Mitigation*)

FEMA standards prohibit development in regulatory floodways, which are channels of rivers and streams and adjacent floodplains that must be reserved to discharge the base flood without

increasing the water level, unless the project can demonstrate that the encroachment would not result in elevated flood levels (FEMA). Within the 100-year flood hazard, FEMA allows development as long as the lowest finished floor (including the basement) is elevated to or above the base flood level, defined as the water level during a 100-year flood, or that which has a 1% chance of occurring in any given year, per Section 60.3 of FEMA's Floodplain Management Criteria (FEMA). Further, federally-backed loan and mortgage lenders require the acquisition of federal flood insurance on any development within the 100-year flood hazard.

The City of St. Helena's Municipal Code incorporates FEMA standards, and allows for development within FEMA's mapped 100-year flood hazard, as long as flood damage and prevention measures are taken (Section 15.52) and as long as new construction or replacement of existing construction is in conformance with FEMA's standards and regulations (Section 17.88.050). These standards and regulations include the above requirements for avoiding encroachments in the regulatory floodway that would raise base flood levels and the requirement for the lowest floors to be elevated to or above the base flood level. The Municipal Code provides even more rigorous flood zone regulations, requiring that any new construction or substantial improvement of a residential structure within FEMA's 100-year flood hazard area shall have the lowest floor elevated to at least eighteen inches above the base flood elevation (Section 15.52.150). These requirements provide mitigation for risks to life and property in 100-year flood hazard zones, including housing.

Implementation of the Proposed Plan could result in development on sites partially or fully within the 100-year flood zone, and could involve construction of new housing as part of residential or mixed use projects within flood hazard zones (see Figure 3.9-5: Land Use Change Areas and Flood Zones). Change Area 4, designated as Mixed-Use and Public and Quasi-Public, falls completely within the 100-flood hazard. Most of its Mixed-Use portion, and some of its Public and Quasi-Public portion, also fall within the regulatory floodway. Change Area 5, designated as Mixed-Use, falls primarily within the 100-year flood hazard zone. It also overlaps slightly with the floodway. Other sites have less overlap with the 100-year flood hazard. Change Area 2, designated as Mixed-Use, and Change Area 3, designated as High Density Residential, fall partially within the 100-year flood hazard and have no overlap with the regulatory floodway. Change Area 6, designated as Mixed-Use, and Change Area 7, designated as Medium Density Residential, each have small portions of their sites designated as within the 100-year flood hazard, and no land area within the floodway. Further, some of the Key Opportunity Sites for constructing medium and high density housing identified in the City's Housing Element have a risk of flooding: Sites 6 and 7 are adjacent to and partially within the regulatory floodway and a portion of Site 9 falls within the 100-year flood hazard. Development on these sites constitutes a potentially significant impact.

Change Area 11 also falls partially within both the floodway and the 100-year flood hazard zone, but as it is designated as Open Space, it would not present a potential conflict with either existing regulations or the Proposed Plan, and thus would not construe a significant impact.

Many policies within the Proposed Plan would help to mitigate any risks involved with development in flood risk areas. Some policies would ensure compliance with existing federal and local regulations. The Proposed Plan limits urban development in designated Flood Hazard Areas to that which complies with FEMA's regulations (OS1.N and PF5.E), and would ensure that the City's flood hazard regulations are in accordance with FEMA /NFIP regulations and reflect best

practices (PS5.F). Change Areas 2, 3, 5, 6, and 7 and Housing Opportunity Site 9 all have some degree of overlap with the 100-year flood hazard zone; any development within the flood hazard areas would be required to comply with FEMA regulations, the St. Helena Municipal Code, and the Proposed Plan's policies for properties in flood risk zones described above, thereby minimizing the potential for loss, damage or injury to the maximum extent practicable. This and any other new development and redevelopment pursuant to the Proposed Plan would be required to comply with all flood protection provisions in the Municipal Code. Setbacks would be established along streambeds to protect the riparian corridors and all development would take place outside of the stream corridor (OS1.N). Other policies in the Proposed Plan would mitigate against actions that could impede or redirect flood flows by ensuring that base flood elevations do not increase and that development activities do not expand the floodplain (OS2.6, PF3.2, PF3.3, PS5.2, PS5.4, PS5.5, PS5.A, and PS5.C). The Proposed Plan would prohibit new development within the floodway (PF5.5 and PF5.E), and prohibit creation of new residential lots that would be subject to periodic inundation by floodwaters by requiring building floor elevations to comply with the Municipal Code's required elevations above base flood level (PF3.C). Further, it ensures that any new development complies with FEMA and DWR standards (PS5.1) and encourages leaving open spaces within the 100-year floodplain (PS5.3). It would also support flood management by encouraging open space uses within Special Flood Hazard Areas consistent with Living River Principles, including maintaining or restoring geomorphic equilibrium, maintaining natural slopes and channel widths, maintaining the connection of the river or creek to its floodplain, and providing adequate development setbacks to allow the river or creek to meander (PS5.3 and OS2.6). The Proposed Plan would also provide for flood protection measures for lands adjacent to York Creek, Sulphur Creek and the Napa River (PF3.3, PF3.A and PS5.B). Therefore, while implementation Proposed Plan would lead to housing within the 100-year flood hazard area, adherence to FEMA standards, the St. Helena Municipal Code, and to applicable Proposed Plan policies would reduce the risks with respect to placement of people or structures within the 100-year flood hazard area to the maximum extent practicable.

However, development within the floodway, including construction of housing, would constitute a significant risk, as FEMA designates these as channels which should flood regularly and provide unimpeded conveyance for floodwaters during a typical large storm event. Development within the floodway-designated portions of Change Areas 4 and 5 and Housing Opportunity Sites 6 or 7 would result in a significant impact, which can be mitigated by Measure HYDRO-1, defined below.

Significance Before Mitigation: Significant

Mitigation Measures

HYDRO-1: Any proposed development or redevelopment on land designated as regulatory floodway on current FEMA maps shall, prior to issuance of a construction permit, obtain and submit to the City a Letter of Map Revision (LOMR) from FEMA, demonstrating that a hydrologic and hydraulic analysis showed that grading modifications were performed such that the proposed development would no longer be within the floodway. These modifications shall be completed without raising the base flood level or impacting other properties.

Significance After Mitigation: Less than significant with mitigation. Compliance with Mitigation Measure HYDRO-1 will ensure that no development impedes waters in the floodway, raises base flood levels, or exposes housing to undue risk from flooding.

Figure 3.9-5

Land Use Change Areas and Flood Zones

- Change Areas
- Floodway
- 100-Year Flood Zone (1% Annual Chance Flood Hazard)
- 500-Year Flood Zone (0.2% Annual Chance Flood Hazard)
- Reduced Risk Areas due to Levee

St. Helena Land Use

- Medium Density Residential
- High Density Residential
- Central Business
- Mixed-Use
- Public and Quasi-Public
- Open Space

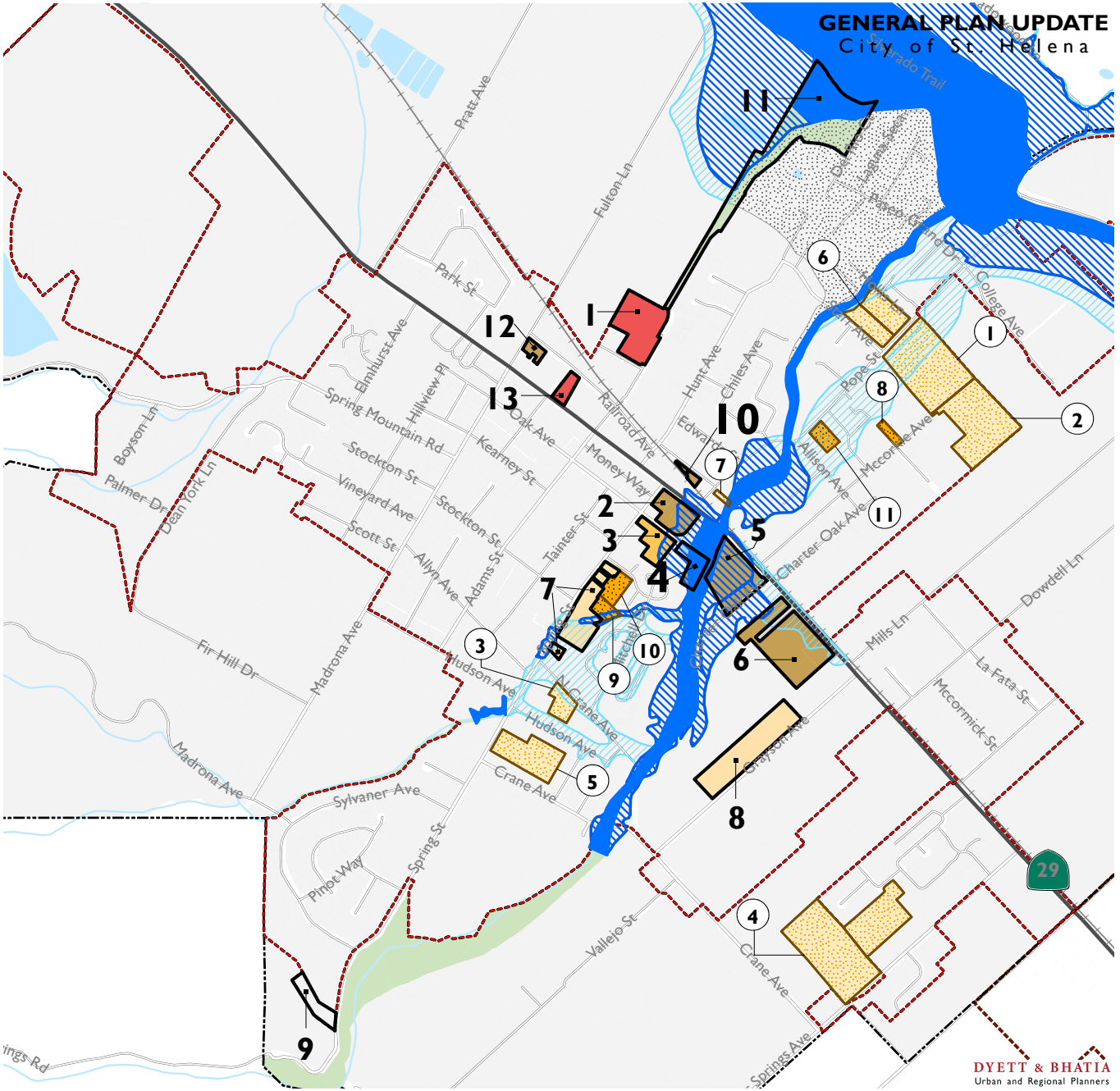
Housing Opportunities Sites

- Medium Density Residential
- High Density Residential

- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena

0 650 1,300 2,600 Feet

Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018



Impact 3.9-7 Development under the Proposed Plan would not place within a 100-year flood hazard area structures which would impede or redirect flood flows. (*Less than Significant*)

As discussed in Impact 3.9-6 above, the City of St. Helena's Municipal Code and provisions in the Proposed Plan would ensure that new development or substantial renovations to existing structures comply with FEMA regulations and do not impede or redirect flood flows within the 100-year flood hazard area.

However, public space improvements called for in the Proposed Plan, specifically the pedestrian and bicycle trail system along creek corridors, could impede or redirect flood flows if not built in accordance with other elements of the Proposed Plan. But policies in the Proposed Plan would mitigate any risks of the trail system impacting flood flows. The system would be required to be integrated with stream corridors only if there were no significant impact on vegetation and water quality (OS2.3), ensuring that trails are not invasive, and would need to comply with Living River Principles, FEMA, and State requirements for adequate open space for flood management. The City of St Helena Municipal Code Sections 15.52.190 and 17.88.050 also outline provisions for construction within flood hazard zones, and prohibit any encroachments in the floodway unless they will not result in any increase in flood levels during the occurrence of the base flood discharge. Further, given that trails would be narrow, flat surfaces no more than a few inches above existing grade, they would present very little chance of impeding or redirecting flood flows in any significant way.

Based on the extensive flood hazard management regulations applicable to any new or substantially modified development discussed in Impact 3.9-6 above, and on the small footprint of the proposed trail system and given compliance with existing local regulations and Proposed Plan policies, the impact of the Proposed Plan on flood flows within the 100-year flood hazard area would be less than significant.

Mitigation Measures

None required.

Impact 3.9-8 Development under the Proposed Plan would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. (*Less than Significant*)

Future development that could be allowed under the Proposed Plan could expose future residents, employees and visitors to St. Helena to impacts from dam or levee failure.

The only levee that could impact the Planning Area is located just upstream of the confluence of Sulphur Creek and the Napa River. The levee is newly constructed to reduce flood risk to that area of St. Helena (see Figure 3.9-3). It is inspected and maintained by the Napa County Flood Control and Water Conservation District, and due to its new construction and future planned maintenance, the risk of failure and flooding is less than significant.

A portion of the potential growth areas identified in the Proposed Plan are within dam failure inundation areas. Bell Canyon Dam and St. Helena Lower Dam, which is within the Planning Area, both have corridors of failure inundation zones within the City of St. Helena. Much of the property identified as subject to any flooding risk associated with dam failure is designed as Agriculture, Park, or Woodlands and Watershed by the Proposed Plan, although there are some areas zoned as Low-, Medium-, and High-Density Residential, Service Commercial, and Public and Quasi-Public within the potential inundation zones.

However, these areas are already largely inhabited, and the population increase precipitated by the Proposed Plan, around 13% overall by 2040, would not significantly increase the risks of loss, injury, or death from flooding due to dam inundation. Further, the potential for dams to fail and inundate the city is low, due to oversight from the DOSD, which inspects each dam annually to ensure the dam is safe, performing as intended, and is not developing problems. Roughly a third of these inspections include in-depth instrumentation reviews of the dam surveillance network data. The DOSD also periodically reviews the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California. When unsafe conditions develop, the DOSD works with dam owners and their consultants to address and remedy the condition in a timely manner. To minimize risk, the DOSD may impose a reservoir restriction limiting the water surface to a level that is judged safe. The DOSD may request that the owner develop an emergency action plan in coordination with local authorities. Bell Canyon Dam and St. Helena Lower Dam are currently characterized by the DOSD as being in Satisfactory and Fair conditions, respectively (DOSD, 2018).

Further, policies and actions in the Proposed Plan (PS6.1, PS6.A and PS6.C) would require adequate emergency response procedures to be in place and periodically updated in the case of a dam or levee failure that requires evacuation. In addition, the City has initiated the process to remove the upper York Creek Dam, further reducing the risk associated with dam failure within the City. That work is expected to be complete in 2019.

Consequently, the potential flooding impacts associated with the failure of a dam or levee is determined to be less-than-significant.

Mitigation Measures

None required.

Impact 3.9-9 Development under the Proposed Plan would not result in inundation by seiche, tsunami, or mudflow. (*Less than Significant*)

As discussed in the Physical Setting section above, the City of St. Helena's elevation above mean sea level and its distance away from the coast and San Francisco/San Pablo Bay precludes the potential for inundation by a tsunami. A seiche, a standing wave in an enclosed or partially enclosed body of water, could occur in one of the nearby reservoirs in Napa County, but the closest of these, Bell Canyon Reservoir and Lake Hennessy, are each over two miles away from the Planning Area. Therefore, the risk of a seiche affecting the City of St. Helena is less than significant. Development under the Proposed Plan could not result in inundation by tsunamis or seiches.

Although the center of the Planning Area is relatively flat, the eastern and western sides of the city start to climb out of the valley floor. Low landslide potential exists in parts of the City's eastern and western portions, with a small eastern portion designated by USGS as "mostly landslides," based on historical mapping of past landslide hazards. As discussed in the Physical Setting section above, mudflows are landslides consisting of material that is wet enough to flow rapidly, and that contains at least 50 percent sand-, silt-, and clay-sized particles. Most of the City of St. Helena is not susceptible to such conditions. Further, policies and actions in the Proposed Plan discourage removal of trees in hillside areas, which ensures more stable soils (OS1.L), and protect riparian corridors and creeks, requiring development setbacks, vegetation cover on watersheds and creek banks, and Living River Principals, all of which maintain more stable creek banks and mitigate risks of mudflows to nearby properties and residents (OS1.1, OS1.A, OS1.B, OS1.H). Robust vegetation along slopes significantly reduces risks of erosion, and therefore mudflows. Other public safety policies (PS6.1, PS6.A and PS6.C) would require adequate emergency response procedures to be in place and periodically updated in the case of a mudflow that requires evacuation.

Therefore, based on existing conditions within the City of St. Helena and the relatively gentle topography, and with compliance with applicable programs and regulations, the risk of development under the Proposed Plan resulting in seiche, tsunami, or mudflow would be less than significant.

Mitigation Measures

None required.

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3.10 Land Use, Population, and Housing

This section assesses potential environmental impacts from future development under the Proposed Plan, as related to land use, population, and housing, including evaluation of the Plan's consistency with existing land use plans and regulations, community division, population growth, and housing displacement. This section describes existing land uses, demographics, and housing in the Planning Area, as well as relevant federal, State, and local regulations and programs. Agricultural uses and recreational uses are addressed separately in sections 3.2 and 3.12, respectively.

Responses to the NOP regarding topics addressed in this section included the following:

- A member of the public commented on the potential impacts of new development and business expansion in the industrial zone located on the southeast side of St. Helena. Additionally, they commented that the General Plan could consider redesignating this land for uses more compatible with surrounding residential areas. This section of the DEIR does not propose to redesignate or expand any land currently designated as industrial and examines the environmental impacts of the land use designations within the Proposed Plan.

Environmental Setting

PHYSICAL SETTING

Regional Setting

St. Helena is located in in the northern portion of Napa County within the San Francisco Bay Area and sits at the heart of the upper Napa Valley, a region known for its diverse soils, microclimates, and success as a center for agriculture and the wine-making industry. The city is located approximately 65 miles north of San Francisco and 77 miles west of Sacramento. State Route (SR) 29 connects St. Helena to other communities in the valley, including Calistoga to the north and Yountville, Napa, and American Canyon to the south. The main north-south roadway serving St. Helena is SR 29, also known as Main Street within the city, that continues north into Lake County.

The city serves as a commercial and business center for the surrounding towns and unincorporated areas, including Calistoga, Angwin, Deer Park, Rutherford and the unincorporated area surrounding St. Helena in Napa County, of which three unincorporated Study Areas are included within the Planning Area for the Proposed Plan, as seen on Figure 2.1-2.

Local Setting

The Planning Area encompasses a land area of approximately 3,598 acres, including the City of St. Helena, the Sphere of Influence (SOI), which is co-terminus with the city limits, and three adjacent, unincorporated Study Areas. The Planning Area contains agricultural lands, business and industrial uses, and single- and multi-family residential neighborhoods. The City of St. Helena has a downtown that extends along Main Street and serves as the commercial center for the city and surrounding communities.

Agricultural lands, including agriculture, winery, and rural/agricultural residential uses, comprise approximately 51 percent of the land area within the Planning Area, with most acreage actively cultivated with vineyards. Within the urbanized areas of the Planning Area, residential land uses occupy the majority of land area.

In order to address concern over the pressures of increasing growth, the City of St. Helena has established an Urban Limit Line (ULL), as shown in Figure 3.10-1, within the incorporated city limits that encompasses the urbanized areas of the city. The ULL is a parcel-specific boundary that marks the limit of where urban development is permitted within the incorporated area. The intent of the ULL is to discourage urban sprawl by containing urban development within designated areas during the planning period (2040). The ULL provides a clear delineation between the rural/urban core where development is concentrated and the surrounding open space and agricultural lands of St. Helena are intended to be preserved. With the exception of hillside areas designated Woodlands and Watersheds (WW) in the existing and proposed General Plan, all lands outside the ULL are designated Agriculture (AG) regardless of their size or actual use. To meet growth demands while protecting surrounding agricultural uses, certain infill areas within the ULL have been designated as higher intensity land uses, such as Mixed-Use.

Existing Land Use

Existing land use (2018), as provided by Napa County Assessor's parcel data, is shown in Figure 3.10-1. Existing land uses within the Planning Area include residential, commercial, industrial, public, parks and recreation, and agricultural uses. The existing land uses largely correspond to the existing and proposed General Plan land use designations. Table 3.10-1 lists existing land uses within the Planning Area by total acreage and by acreage within the City of St. Helena and the three study areas.

Table 3.10-1: Existing Land Use Distribution within the Planning Area, 2018

Land Use Type	*Acres*	*Percent of Planning Area*
City of St. Helena		
Ag/Rural Residential	768.9	21.4%
Agriculture	480.5	13.4%
Cemetery	31.7	0.9%
Commercial	57.1	1.6%
Educational Facilities	100.4	2.8%
Hospital/Health	0.2	0.0%

Table 3.10-1: Existing Land Use Distribution within the Planning Area, 2018

Land Use Type	*Acres*	*Percent of Planning Area*
Hotel/Lodging	16.5	0.5%
Industrial	50.1	1.4%
Mixed Use	20.3	0.6%
Mobile Home Park	38.6	1.1%
Multi Family Residential	46.6	1.3%
Office	16.9	0.5%
Open Space	92.4	2.6%
Parks and Recreation	26.2	0.7%
Public	38.5	1.1%
Religious/Institutional Facilities	11.8	0.3%
Semi Public	0.9	0.0%
Single Family Residential	580.2	16.1%
Townhomes	25.3	0.7%
Utilities	5.8	0.2%
Vacant	127.6	3.5%
Winery	363.3	10.1%
Winery and Residential	41.9	1.2%
Railroad ROW	14.6	0.4%
Private Road	4.3	0.1%
Transportation/Road Row	187.6	5.2%
Total for St Helena	***3,148.3***	***87.5%***
Study Areas		
Study Area 1	*165.3*	*4.6%*
Ag/Rural Residential	69.5	1.9%
Hotel/Lodging	77.1	2.1%
Open Space	0.6	0.0%
Single Family Residential	2.7	0.1%
Vacant	9.2	0.3%
Private Road	4.6	0.1%
Transportation/Road Row	1.6	0.0%
Study Area 2	*99.8*	*2.8%*
Vacant	99.8	2.8%
Study Area 3	*184.9*	*5.1%*
Ag/Rural Residential	56.9	1.6%
Commercial	7.1	0.2%
Hotel/Lodging	4.7	0.1%

Table 3.10-1: Existing Land Use Distribution within the Planning Area, 2018

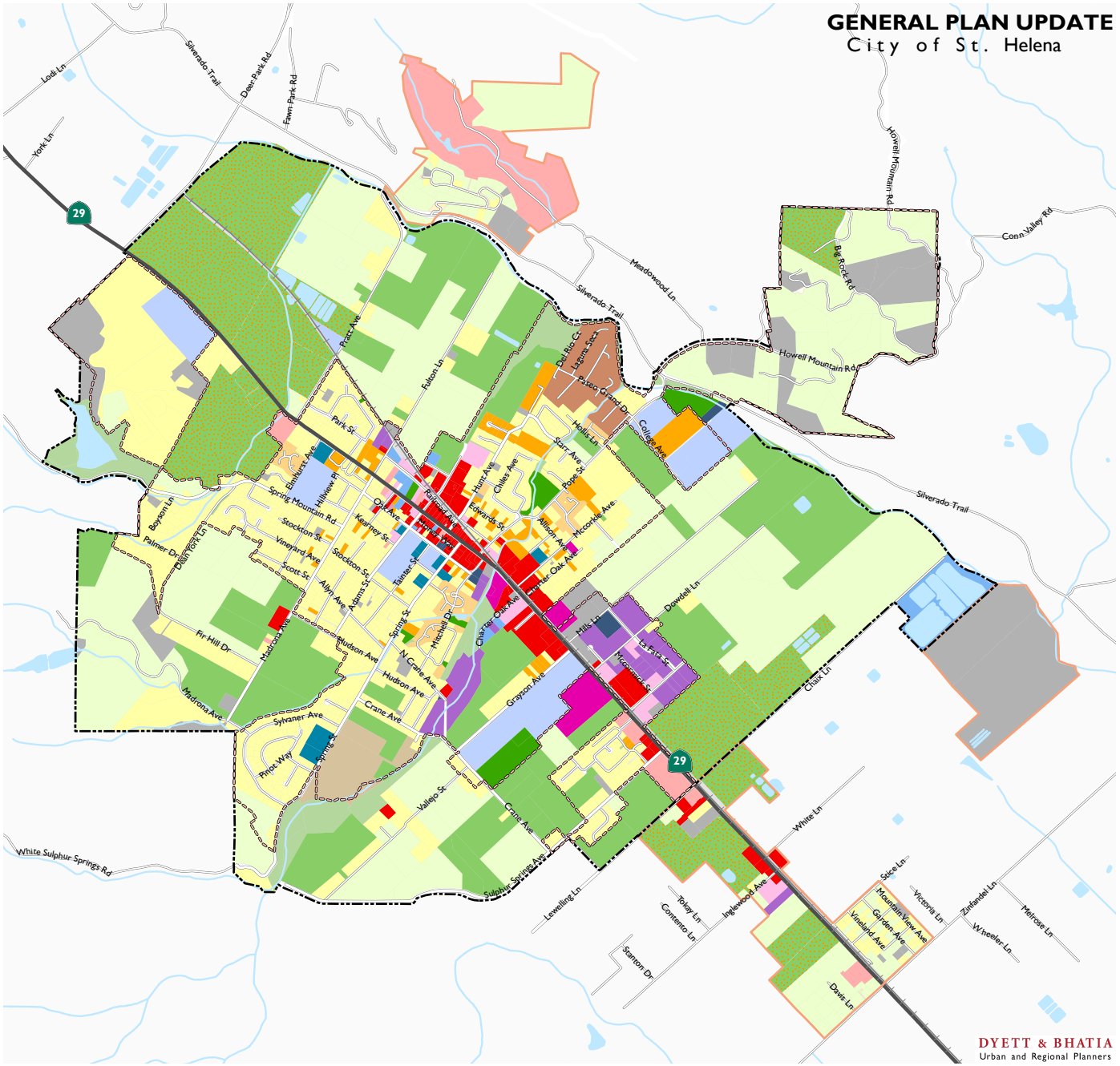
Land Use Type	*Acres*	*Percent of Planning Area*
Industrial	2.0	0.1%
Office	3.1	0.1%
Single Family Residential	14.1	0.4%
Vacant	5.4	0.1%
Winery	71.8	2.0%
Railroad ROW	5.7	0.2%
Private Road	0.6	0.0%
Transportation/Road Row	13.6	0.4%
Study Area Totals	***450.0***	***12.5%***
Planning Area Total	**3,598.3**	**100.0%**

Sources: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 3.10-1

Existing Land Uses

- Ag/Rural Residential
- Single Family Residential
- Townhomes
- Multi Family Residential
- Mobile Home Park
- Hotel/Lodging
- Commercial
- Office
- Mixed Use
- Industrial
- Hospital/Health
- Educational Facilities
- Public/Quasi-Public
- Religious/Institutional Facilities
- Parks and Recreation
- Open Space
- Agriculture
- Winery
- Cemetery
- Utilities
- Vacant
- Railroad ROW
- Urban Limit Line
- Study Areas
- City of St. Helena


GENERAL PLAN UPDATE
City of St. Helena
Silverado Trail
Howell Mountain Rd
Conn Valley Rd
Big Rock Rd
Meadowood Ln
Howell Mountain Rd
Silverado Trail
Lodi Ln
York Ln
Deer Park Rd
Fawn Park Rd
29
Pratt Ave
Fulton Ln
Park St
Elmhurst Ave
Hillview Pl
Spring Mountain Rd
Byxbee Ln
Palmer Dr
Dean York Ln
Oak Ave
Kearney St
Stockton St
Vineyard Ave
Scott St
Adams St
Ailyn Ave
Fir Hill Dr
Madrona Ave
Hudson Ave
Sylvaner Ave
Crane Ave
Pratt Way
Spring St
Vallejo St
White Sulphur Springs Rd
Sulphur Springs Ave
Lewelling Ln
Tokay Ln
Contento Ln
Stanton Dr
Inglewood Ave
Davis Ln
Spice Ln
Victoria Ln
Mountain View Ave
Garden Ave
Vineland Ave
Zinfandel Ln
Melrose Ln
Wheeler Ln
White Ln
Chaix Ln
Dowdell Ln
Hills Ln
La Faire St
Grayson Ave
Mcconnell Ave
Charter Oak Ave
Mitchell Dr
N Crane Ave
Hunt Ave
Chiles Ave
Edwards St
Allison Ave
Mcconnell Ave
Pope St
Starr Ave
Hollis Ln
College Ave
Dal Rio Ct
Laguna Seca
Napa Grand Dr
Redwood Ave
Tainter St
Rose Ln
Rosewall Ave
Pratt Way
Hillview Pl
Elmhurst Ave

Residential Uses

The main core of residential development within the Planning Area is located along Main Street and in the west side of the Planning Area, extending in a northeast-southwest direction (see Figure 3.10-1). Housing in the residential areas consists mostly of single-family detached houses. Some residential areas, especially rural residential areas farther from the center of St. Helena, abut agricultural uses. Multi-family housing developments are situated mainly in the central core of the Planning Area, typically adjoining single-family areas.

As shown in Table 3.10-1, single-family housing occupies approximately 597 acres (16percent) of the total land area within the Planning Area. Single-family housing is a more prominent land use within the ULL—within ULL, single-family housing occupies 486 acres (33 percent) of total land area, while outside the ULL, single-family housing occupies 111 acres (5 percent) of the total land area. Multi- family housing occupies approximately 47 acres (1.3 percent) of the Planning Area. All multi-family land uses are within the ULL. Total existing residential land uses, including single-family, multi-family, mobile home parks, and townhomes within the Planning Area occupy approximately 707 acres (20 percent of land). Within the ULL, total existing residential land uses occupy 596 acres, or 41 percent of land. Outside the ULL, existing residential uses total 111 acres, or 5 percent of land.

Commercial Uses

Existing commercial land uses, including service commercial, retail, restaurants, office and other similar central business uses, are located along or near Main Street (see Figure 3.10-1). Commercial uses along Main Street extend from north of Adams Street to Lewelling Lane, at the southerly city limits, and occupy both sides of the street for most of this length. At the center of town, between Spring and Adams streets, the commercial uses expand beyond Main Street onto intersecting and parallel streets, such as Kearney Street, and Oak, Hunt, Library, and Railroad Avenues.

As shown in Table 3.10-1, commercial uses (retail, restaurant, and similar uses) occupy approximately 64 acres (about 2 percent) of the total land area within the Planning Area. Within the ULL, commercial uses occupy 54 acres, or about 4 percent of land, while outside the ULL, commercial uses occupy 10 acres, or about 0.5 percent of land. Office uses occupy 20acres (0.5 percent) of land uses within the total Planning Area. Office uses comprise 17 acres (or approximately 1 percent) of land within the ULL and about 3 acres (0.1 percent) of land outside the ULL. Mixed uses, which consist of combined office and commercial uses, are located predominantly along the southern portion of Main Street and make up approximately 20 acres (0.6 percent) of the Planning Area. There are no commercial uses within the City of St. Helena outside of the ULL, with the exception of wineries that may have tasting rooms. However, there are some commercial uses, including wineries and retail, located in Study Area 3 along SR-29. In total, existing commercial land uses, including hotel/lodging commercial, commercial, office, and mixed office and commercial uses, occupy approximately 202 acres (about 6 percent of land uses within the Planning Area). Within of the ULL, commercial uses total about 91 acres, or 6 percent of land, while outside of the ULL, commercial uses total about 110 acres, or 5percent of land.

Industrial Uses

Two main areas of existing industrial land use are identified in the Planning Area, within St. Helena: (1) a building materials establishment (Harold Smith & Sons) and other limited industrial uses north of Grayson Avenue, in the vicinity of Sulphur Creek; and (2) a light industrial park located east of Main Street and south of Mills Lane (see Figure 3.10-1). A small industrial area is also located in Study Area 3, along SR 29 south of Inglewood Avenue. As shown in Table 3.10-1, industrial uses occupy approximately 52 acres (1.5 percent) of the total land area within the Planning Area. Industrial uses occupy 50 acres, or about 4 percent of land within the ULL, and 2 acres, or about 0.1 percent of land outside of the ULL.

Public and Quasi-Public Uses

Public and quasi-public land uses in the Planning Area include government-owned facilities, schools and churches. These uses are located mainly in the area west of Main Street, along with St. Helena High School which is located west of Main Street just south of Grayson Avenue. As shown in Table 3.10-1, existing public and quasi-public, religious/institutional, and educational uses occupy approximately 152 acres (4.2 percent) of the total land area within the Planning Area. Within the ULL, public and quasi-public uses occupy 109 acres (7.5 percent of total land area), while outside the ULL, public and quasi-public uses occupy 42.5 acres (2 percent of total land area).

Parks, Recreation, and Open Space Uses

Parks and recreational uses are located throughout the central part of St. Helena. As shown in Table 3.10-1, park and recreational uses occupy approximately 26 acres (0.7 percent) of the total land area within the Planning Area. About 20 acres, or about 1.3 percent of land within the ULL is used for parks and recreation, while about 7 acres, or 0.3 percent of land outside of the ULL is used for this purpose.

Existing open space land uses within the Planning Area are primarily located along the Napa River and Sulphur Creek. Open space land uses include areas preserved for habitat, aesthetic value, such as views, or passive recreation. Within the Planning Area, approximately 93 acres (2.6 percent) are open space lands. This total includes the 21.7-acre, City-owned "Lower Reservoir" property that may be developed into a future park. In total, 29 acres, or about 2 percent of land within the ULL is open space, while about 64 acres, or 3 percent of land outside of the ULL is open space.

Agricultural Uses

As previously discussed, agriculture is the predominant existing land use by area in the Planning Area. Agricultural uses are adjacent to the City's ULL, with large areas in the northeast and southeast portions of the city, where they extend from approximately Main Street to the Napa River. Additionally, the three Study Areas include agricultural land uses. Most parcels used for agriculture are relatively large and most are used for viticulture. In some areas, agricultural lands adjoin or have been surrounded by urban uses. Most of the agricultural land is located outside the Urban Limit Line. As shown in Table 3.10-1, agricultural uses, including wineries and rural residential areasoccupy approximately 1,853 acres (51 percent) of the total land area within the Planning Area. Of that total, approximately 273 acres are located within the Urban Limit Line and approximately 1,579 acres are located outside the Urban Limit Line. Of this total, rural residential areas occupy approximately 937 acres (26.0 percent) of the Planning Area. Rural residential uses

comprise 184 acres (about 13 percent of land) within the ULL and 753 acres (35 percent of land) outside of the ULL.

For more discussion of agricultural uses, see Chapter 3.2 Agricultural and Forestry Resources, of this EIR.

Population, Housing, and Jobs

The Proposed Plan uses a baseline year of 2018. Past trends for population, housing units, and jobs data are presented using projections from the Association of Bay Area Governments (ABAG) or estimates from the California Department of Finance (DoF). The 2018 baseline population, housing units, and jobs in the City of St. Helena, were estimated using land use assumptions from the regional traffic model, adjusted with reference to data from the DoF, ABAG, and the Napa County Assessor. While a 2018 baseline for population, housing, and jobs was estimated for the Study Areas, DoF and ABAG data is only available at the state, city, county, or unincorporated area level, and is therefore not included in the "Past and Current Trends" section below.

Past and Current Trends

As shown in Table 3.10-2, the City of St. Helena has an estimated population in 2018 of 6,118, making it the third largest city in Napa County. This estimate represents an approximately 2.8 percent increase from 2000, when the city's population was 5,950. This population growth is much slower in comparison to Napa County, which increased by approximately 13.7 percent between 2000 and 2018, from a population of 124,279 to 141,294.

Between 2000 and 2018, the number of housing units increased throughout the Bay Area by approximately 13.2 percent, from 2,552,404 to 2,888,882 (California Department of Finance, 2012) (California Department of Finance, 2018). During this period, Napa County experienced an approximate 13.6 percent growth in the housing stock, adding about 6,603 units (California Department of Finance, 2012) (California Department of Finance, 2018). During the same time, the number of housing units in the City of St. Helena increased by approximately 0.6 percent, from 2,707 housing units in 2000 to 2,874 in 2018.[1]

Within the City of St. Helena, approximately 75.5 percent of housing units are single-family and 24.5 percent is multi-family. This is consistent with the ratio of single to multi-family housing in 2000. Compared to Napa County as a whole, the city has a slightly lower proportion of single-family housing and a slightly higher proportion of multi-family housing. Table 3.10-2 presents a comparison of housing types in St. Helena and in Napa County as a whole. The average household size in St. Helena is approximately 2.44 people, which is slightly lower than Napa County's average of approximately 2.77 people (California Department of Finance, 2018).

[1] 2018 housing unit total includes accessory dwelling units (ADUs).

Table 3.10-2: Population and Housing Trends: City of St. Helena & Napa County, 2000-2018

	2000	*2018*
City of St. Helena		
Population	5,950	6,118
Housing Units	2,707	2,874
Single Family (Attached and Detached)	2,019	2,170
Multifamily	688	704
Vacancy Rate	12.1%	14.2%
Persons per Household	2.47	2.44
Population Growth Rate (2000-2018)	N/A	2.8%
Housing Growth Rate (2000-2018)	N/A	0.6%
Napa County		
Population	124,279	141,294
Housing Units	48,554	55,157
Single Family (Attached and Detached)	39,709	44,234
Multifamily	8,845	10,923
Vacancy Rate	6.5%	10.7%
Persons per Household	2.62	2.77
Population Growth Rate (2010-2018)	N/A	13.7%
Housing Growth Rate (2010-2018)	N/A	13.6%

Sources: DoF, 2000; DoF, 2018; Dyett & Bhatia, 2018

In 2016, 21.9 percent of all ownership households with a mortgage in St. Helena paid more than 30 percent of the household income towards housing costs, and nearly half of renter households paid more than 30 percent (American Community Survey, 2016). Table 3.10-3: Housing Cost Overpayment (2016), shows the number and percentage of households in St. Helena with a housing cost burden, as defined as those households paying more than 30 percent of income on housing.

Table 3.10-3: Housing Cost Overpayment (2016)[1]

Housing Units with a Mortgage	*1,477*
Overpaying Owner Household	324
Percentage of Overpaying Owners	21.9%
Housing Units without a Mortgage	*672*
Overpaying Owner Household	119
Percentage of Overpaying Owners	17.7%
Rented Units	*1,059*
Overpaying Renter Households	502
Percentage of Overpaying Renter Households	47.4%

Notes:
1. Households paying in excess of 30% of income towards housing cost.
2. Numbers may not sum due to units that were not computed in the American Community Survey.

Source: 2012-2016, American Community Survey 5-Year Estimates

According to ABAG, there were approximately 5,900 jobs in St. Helena in 2015, an increase of 5.4 percent since 2000, when there were an estimated 5,600 jobs in the city. The greatest number of jobs within the Planning Area are in the service (33.7 percent), manufacturing (21.1 percent), retail (17.8 percent), and agriculture (16.3 percent) sectors. In comparison, the total number of jobs in Napa County increased by approximately 111.4 percent between 2000 and 2015, from 66,360 to 140,300 jobs. In Napa County, the largest job sectors are health, educational, and recreational services (29.5 percent), manufacturing (20.7 percent), service (12.1 percent), and retail (8.9 percent) (Association of Bay Area Governments (ABAG), 2013).

Projections

Using the 2018 baseline population of approximately 5,900 estimated for the Proposed Plan, the City of St. Helena's population is projected to increase 12.8 percent by 2040, to 6,585. The estimated study area population in 2018 is 553 people, for a total 2018 Planning Area population of 6,392. While growth is expected within the study areas, it is not as a result of development encouraged in the Proposed Plan. Therefore, the population of the Planning Area is projected to be 7,288 by full build out in 2040. For comparison, additional projections from ABAG and DoF are provided in Table 3.10-4 for population within the City of St. Helena.

St. Helena's status as the third largest city in Napa County is expected to continue through 2040. Higher growth rates, of about 12 to 16 percent, are projected for Napa County as a whole through 2040, with most of this growth occurring in the cities of Napa and American Canyon (Association of Bay Area Governments (ABAG), 2013).

Overall, there is greater capacity for market rate housing development within the city limits than would be allowed under the St. Helena Growth Management System over the planning horizon. The Growth Management System caps the number of market rate housing units that can be built in a given year at nine, although affordable units are exempted from this cap. While the city has seen construction of four affordable units per year on average in recent years, in view of new State housing legislation aimed at stimulating affordable housing production and policies in the

Proposed Plan, an additional six new affordable units per year, each year over the life of the Plan was assumed. As such, is assumed that 15 new housing units will be constructed each year through 2040.[2]

Using the methodology discussed above, as shown in Table 3.10-4, the number of housing units within the City of St. Helena is projected to increase by 12.1 percent from 2,735 to 3,067 between 2018 and 2040. The Study Areas are projected to experience a 30.4 percent increase in housing units, though no additional development is encouraged under the Proposed Plan within these areas. In total, the Planning Area is expected to add 383 housing units – 214 single-family units and 169 multi-family units.

Table 3.10-4: Population and Housing Units Projections (2040)

	Source	*Proposed Plan*		*DoF*		*ABAG*	
	Year	*2018*	*2040*	*2018*	*2040*	*2015*	*2040*
Population	City of St. Helena	5,900	6,585	6,118	6,902[1]	5,900	6,300
	Planning Area[2]	6,392	7,288	-	-	-	-
	Napa County	-	-	141,294	160,521	140,300	163,700
Housing Units	City of St. Helena	2,735	3,067	-	-	-	-
	Planning Area[2]	2,903	3,286	-	-	-	-

Notes:
1. Estimated based on St. Helena accounting for 4.3 percent of the County population.
2. Includes the City of St. Helena, the Sphere of Influence, and three Study Areas.

Sources: DOF, 2018; ABAG, 2013; Dyett & Bhatia, 2018

As shown in Table 3.10-5, by 2040, the number of jobs in St. Helena is expected to increase by approximately 17.1 percent to a total of about 6,378 jobs according to the Proposed Plan. ABAG projects less job growth, at an 11.4 percent increase between 2015 and 2040. ABAG projections for Napa County show an 18.3 percent increase in jobs between 2015 and 2040 (Association of Bay Area Governments (ABAG), 2013).

A 28.9 percent increase in jobs is projected to occur in the study areas between 2018 and 2040, for a total of 633 jobs. In total, jobs within the Planning Area are projected to increase by 18.1 percent, from 5,937 to 7,011 between 2018 and 2040.

[2] Newly constructed ADUs would be counted as housing units.

Table 3.10-5: Jobs Projections (2040)

	Number of Jobs	
Geography	*2018*	*2040*
City of St. Helena	5,446	6,378
Study Areas	491	633
Planning Area Total	**5,937**	**7,011**

Sources: Dyett & Bhatia, 2018

REGULATORY SETTING

Federal Regulations

There are no relevant federal laws, policies, plans, or programs that apply to the Proposed Plan in relation to this issue area.

State Regulations

California Relocation Law, Public Resources Code Section 7260 et seq.

The California Relocation Law requires the fair and equitable treatment of persons displaced as a direct result of programs or projects undertaken by a public entity. The law requires agencies to prepare a relocation plan, provide relocation payments, and identify substitute housing opportunities for any resident that is to be displaced by a public project.

Government Code Sections 65919 to 65919.11

Government Code Sections 65919 to 65919.11 summarize procedures related to interagency referrals for different types of lead agency actions, including general plan updates. Among other referrals, this part of the Government Code provides a procedure and protocols for requesting counties keep cities informed regarding land use actions within the unincorporated portions of spheres of influences and planning areas.

Department of Housing and Community Development

The State Department of Housing and Community Development (HCD) is responsible for determining the regional housing need for all jurisdictions in California and ensuring the availability of affordable housing for all income groups.

Napa County Local Agency Formation Commission (LAFCO)

The Napa County Local Agency Formation Commission (LAFCo) is an independent County agency established by State law. LAFCo has approval authority regarding changes in organization to cities, including annexations, detachments, new formations, and incorporations. LAFCo approval is necessary for changes to St. Helena's city limits or Sphere of Influence. Action by LAFCo in 2009 modified the Sphere of Influence to be co-terminus with the city limits.

Sustainable Communities and Climate Protection Act of 2008 (Chapter 728, Statutes of 2008)

The Sustainable Communities and Climate Protection Act of 2008, otherwise known as Senate Bill (SB) 375, requires the integration of land use, housing, and transportation planning to achieve regional greenhouse gas (GHG) emission reductions, adopted by the California Air Resources Board. SB 375 requires Metropolitan Planning Organizations (MPOs) to develop a Sustainable Communities Strategy (SCS)—a new element of the regional transportation plan (RTP)—to plan for achieving these GHG reduction targets. The SCS must demonstrate the attainment of the regional GHG emissions reduction targets while accommodating the full projected population of the region.

Assembly Bill (AB) 317

AB 317 (2017) established the Napa County Farmworker Centers Account to assist in the financing, maintenance, and operation of the Napa County Housing Authority's (NCHA) Farmworker Centers for year-round use by migrant and non-migrant farm labor employees. The bill requires the department to award, annually, up to $250,000 in matching funds to the NCHA upon demonstration that it is capable of continuing to effectively serve the housing needs of migrant or other farmworkers in Napa County and requires the NCHA to provide equal or greater funds from local sources.

Local Regulations

Association of Bay Area Governments (ABAG) Plan Bay Area 2040

The Metropolitan Transportation Commission (MTC), Bay Area Air Quality Management District (BAAQMD), Association of Bay Area Governments (ABAG), and Bay Conservation and Development Commission (BCDC) adopted *Plan Bay Area* in July 2013. As described in Chapter 1 of this EIR, Introduction, *Plan Bay Area* is the integrated land use/transportation plan and demographic/economic forecast for the nine-county region of the San Francisco Bay Area. The plan coordinates housing plans, open space conservation efforts, economic development strategies, and transportation investments. In July 2017, the regional agencies adopted the first update to *Plan Bay Area*, which occurs every four years.

One of the main goals of *Plan Bay Area* is to reduce greenhouse gas emissions from cars and light-duty trucks through the year 2040 to meet state goals under SB 375, the Sustainable Communities and Climate Protection Act of 2008. Under SB 375, Metropolitan Planning Organizations such as MTC must develop a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan (RTP). *Plan Bay Area* functions as both the SCS and the RTP for the region.

To reduce greenhouse gases emissions, *Plan Bay Area* promotes compact, mixed-use, infill development within walkable/bikeable neighborhoods close to public transit, jobs, schools, shopping, parks, recreation, and other amenities. Local jurisdictions voluntarily identified Priority Development Areas (PDAs) as appropriate locations for these types of neighborhoods. PDAs are eligible for capital infrastructure funds, planning grants, and technical assistance. The adopted *Plan Bay Area* estimates that approximately 80 percent of the region's future housing needs may be met within PDAs. The strategy of focusing growth in PDAs maximizes travel choices, reduces

dependency on driving, takes advantage of existing infrastructure capacity, and reduces pressure to develop open space. No PDAs have been identified within the Planning Area.

ABAG Regional Housing Needs Allocation

Assembly Bill 2853 (AB 2853), enacted in 1980, requires all cities to address their regional "fair share allocation" of housing needs by income group in their General Plan Housing Elements. The City of St. Helena must therefore evaluate "regional fair share" as projected by ABAG, which is the council of governments for the nine-county San Francisco Bay region. ABAG's determination of the local share of regional housing takes into consideration factors such as: market demand for housing; employment opportunities; availability of suitable sites and public facilities based on local plans; commuting patterns as they relate to the differences between job creation and labor supply; type and tenure of housing; and housing needs of farmworkers.

ABAG allocates housing needs for each city and county in the region according to four specified income levels, so that each jurisdiction can make plans to provide for its "fair share" of regional housing needs by income group. To describe these housing needs, ABAG uses the income categories of very low for household incomes of up to 50 percent of the median income for the region (i.e., the county), low for 51 to 80 percent of the regional median income, moderate for 81 to 120 percent of the regional median income.

ABAG's most recent projected housing needs are for the period 2015 to 2023. ABAG has determined that a total of 31 housing units would be needed in St. Helena during this eight -year period, consisting of 8 units affordable to very low-income households, 5 units affordable to low-income households, 8 units affordable to moderate-income households, and 13 units affordable to above moderate-income households (ABAG, 2015). These "fair-share" totals represent the ABAG-projected number of units that would need to be added to St. Helena's housing stock over the period 2015 to 2023 in order to achieve an equitable distribution of housing opportunities.

California Public Utilities Commission (CPUC)

The California Public Utilities Commissions (CPUC) has jurisdiction over certain uses involving railroad right-of-way within St. Helena. CPUC regulates the safety of both publicly- and privately- owned railroad and rail transit companies, agencies, and rail crossings. The City has some authority to regulate specific uses and activities.

Napa County General Plan

Provisions of the Napa County General Plan apply to unincorporated areas of Napa County, including the three study areas adjacent the St. Helena city limits analyzed in the Proposed Plan and EIR. The Napa County General Plan land use map designates the areas north and south of the city limits for Agricultural Resource land uses and the areas east and west of the city for Agricultural, Watershed & Open Space land uses. Figure 3.10-2 shows Napa County General Plan land use designations for the unincorporated portions of the Planning Area.

The Napa County General Plan contains a series of policies for an area identified as "South St. Helena," located immediately south of the city limits. Recognizing that this area is designated for Agricultural Resource land uses but contains existing residences and businesses, the County General Plan allows existing parcels zoned for commercial uses as of February 1, 1990 "to develop

commercial uses and mixed residential-commercial uses which are permitted by the existing commercial zoning as if they were designated on the land use map for these uses" (County of Napa, 2015).

Napa County Measure A and Growth Management System

Measure A, or the Napa County Slow Growth Initiative, was approved by the voters in 1980. Measure A limited the annual number of residential building permits issued in unincorporated Napa County to reflect an annual population growth rate no higher than that of the greater Bay Area region or 1 percent, whichever was less. The measure also stipulated that at least 15 percent of new housing units permitted each year be affordable to persons of average or below-average income.

Measure A expired in December 2000 and was replaced by the Housing Allocation Program in Napa County Code Chapter 8.02 (via Ordinance No. 1178). The Housing Allocated Program was amended in 2004 to comply with federal and state land use and fair housing law, in 2008 when the Napa County General Plan was adopted, and, most recently, in 2009, when the Housing Element was updated.

The current Napa County growth management system allows for a fixed number of new residential building permits annually in unincorporated Napa County. The number, which stands at 115 as of 2017, is updated each time the Housing Element is updated to reflect new population data. Non-residential development and some limited types of residential construction, including secondary dwelling units, are exempt from the growth management system. Residential building permits subject to the annual limit are divided into four categories: owner-builders (Category 1), small-scale homebuilders (Category 2), larger housing developers (Category 3), and affordable housing (Category 4). Pursuant to Measure A, Category 4 permits make up 15 percent of the total number of permits allowed. There is currently no required percentage for annual allocations in Categories 1-3. Unused permit allocations in Categories 1-3 can be carried over for future use for up to three years. Category 4 permits carry over indefinitely, and at the end of three years, unused Category 1-3 allocations become Category 4 allocations.

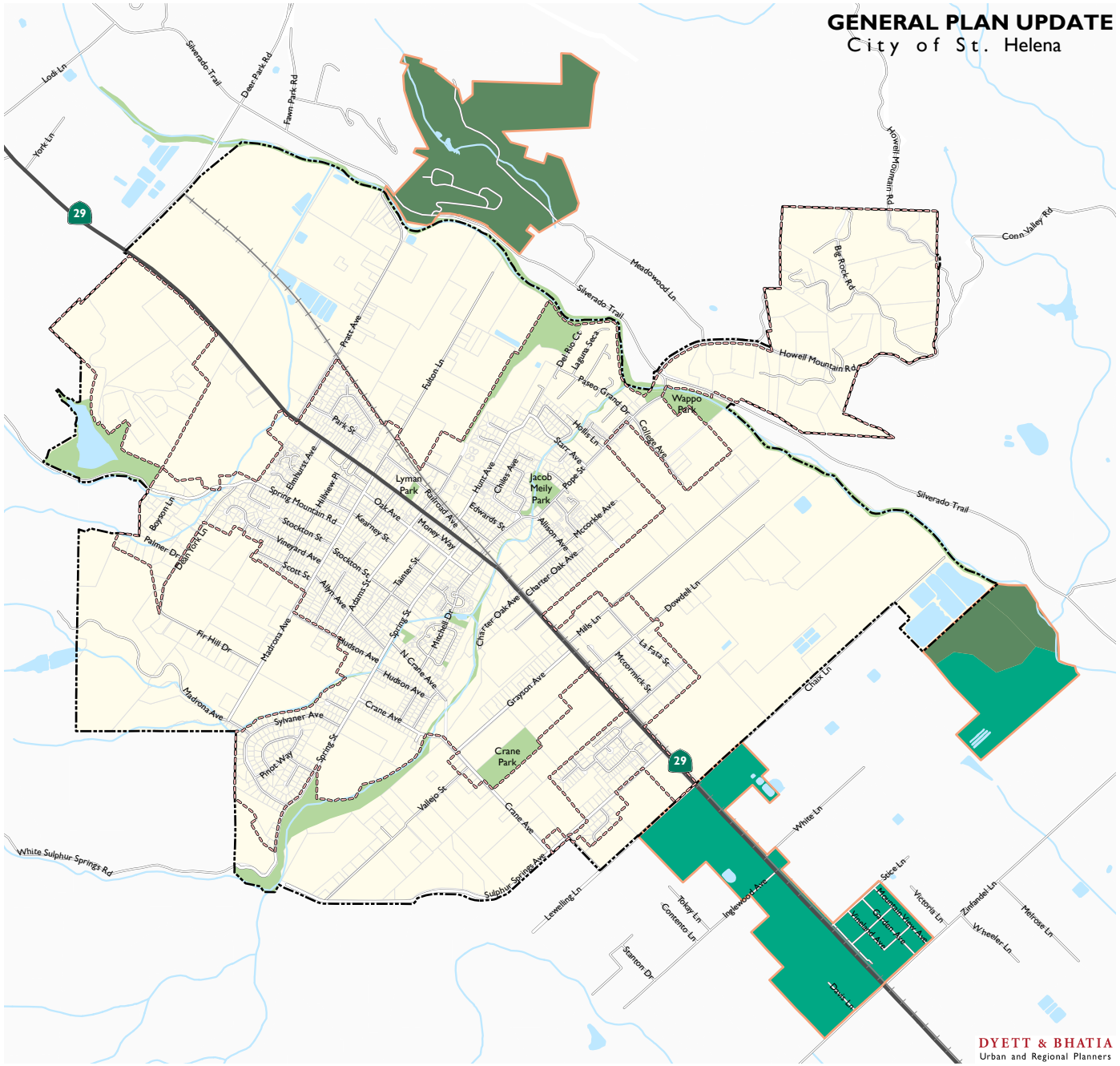
Figure 3.10-2

Napa County General Plan Designations

County General Plan

- Agricultural Resource
- Agriculture, Watershed and Open Space

- City of St. Helena
- Parks and Open Space
- Urban Limit Line
- Study Areas



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Napa County Housing Authority (NCHA)

The Napa County Housing Authority (NCHA) is an advisory body to the Housing Authority and Board of Supervisors of Napa County that works to address the need for safe and affordable housing for farm workers, particularly those in the migrant/seasonal category who, in turn, support the agricultural industry of Napa County. The NCHA oversees three publicly owned and operated farm worker housing centers in Napa County, which each house approximately 60 workers. One of the housing centers is located in St. Helena. The centers are funded by the owners of vineyards with at least 45,000 acres of vineyards, who pay a $10-per-acre annual housing assessment. In June 2018, Napa County supervisors voted to raise the assessment to $11 per acre. In addition to overseeing the housing centers, NCHA reviews any project requesting funding from the County's Affordable Housing Fund.

St. Helena Residential Growth Management System

The St. Helena Residential Growth Management System (Municipal Code Section 17.152) limits the residential growth rate in the city, while providing for development of both market-rate and affordable housing units. Under this system, no more than nine building permits for market-rate housing may be issued each year. Permits remaining unused at the end of the year are carried over into the subsequent years but are only available for allocation for the construction of market-rate units in development projects that include a minimum of 40 percent income restricted dwelling units. The number of income-restricted housing units constructed is determined by the City Council through the discretionary review process. Housing agreements that are required for income-restricted housing developments in the community, contain guarantees that the dwelling units would continue to be affordable to persons of very low, low, or moderate incomes for an agreed-upon period of time (City of St. Helena, 2010e). The City of St. Helena does not own or manage income-restricted housing within the city. This is done by non-profit entities (e.g., Bridge Housing, EAH Housing, etc.) and/or by contracts with the City of Napa's Housing Department.

St. Helena Municipal Code

Title 17 Zoning Ordinance

The St. Helena Zoning Ordinance (Title 17 of the Municipal Code) implements the General Plan and provides location-specific regulation, such as use restrictions and building height and bulk limitations. Permits to construct new buildings (or to alter or demolish existing ones) may not be issued unless the proposed action conforms to the Zoning Ordinance or a variance is granted pursuant to provisions of the Zoning Ordinance. For some projects, the site may be rezoned or the Zoning Ordinance may be amended.

The Zoning Ordinance establishes 22 zoning districts, consisting of 15 independent districts and 7 overlay districts, as follows (City of St. Helena, 2010d):

- Twenty-Acre Agriculture (A-20) District
- Winery (W) District
- Agricultural Preserve (AP) District

- Low Density Residential (LR) District
- Low Density Residential One Acre Minimum (LR-1A) District
- Medium Density Residential (MR) District
- High Density Residential (HR) District
- Central Business (CB) District
- Service Commercial (SC) District
- Business and Professional Office (BPO) District
- Industrial (I) District
- Woodlands and Watershed (WW) District
- Public and Quasi-Public (PQP) District
- Parks and Recreation (PR) District
- Open Space (OS) District
- Rural-Residential Overlay (RR) District
- Flood Plain Overlay (FP) District
- Historic Preservation Overlay (HP) District
- Planned Development Overlay (PD) District
- Mobilehome Park Overlay (MHP) District

The locations of these zoning districts are generally consistent with current land use patterns.

In addition to the districts listed above, Section 17.136.060 Stream Bank Stabilization regulates development in proximity to creeks and waterways. This section requires a building setback of 20 feet between a building or structure, except for an accessory building less than 500 square feet, and the top of stream, creek or river bank. Where the average depth of the bank is eight feet or greater, the required setback from the toe of the stream bank shall be two times the depth of the bank plus 20 feet, unless special provisions for bank stabilization are installed as approved by the Public Works Director.

City of St. Helena General Plan 2015 Housing Element

Article 10.6 of the California Government Code outlines the State's Housing Element requirements. A housing element must analyze existing and projected housing needs, examine special housing needs within the population, evaluate the effectiveness of current goals and policies, identify governmental and other constraints, determine compliance with other housing laws, and identify opportunities to incorporate energy conservation into the housing stock. The element must also establish goals, policies and programs to maintain, enhance, and develop housing.

The City of St. Helena's RHNA (as explained above under ABAG Regional Housing Needs Allocation) for the planning period (2015 through 2023) projected a need for the construction of an additional 31 housing units in St. Helena during this eight-year period, consisting of 8 units

affordable to very low-income households, 5 units affordable to low-income households, 8 units affordable to moderate-income households, and 13 units affordable to above moderate-income households. The City of St. Helena 2015-2023 Housing Element identifies key infill opportunity sites for medium- and high- density residential development to meet the RHNA target. It also includes policies and implementing actions to meet housing demands, such as ensuring that the General Plan's Growth Management Policies do not limit the ability to meet regional housing needs and encouraging higher density development where appropriate.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Physically divide an established community;**

Criterion 2: **Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;**

Criterion 3: **Conflict with any applicable habitat conservation plan or natural community conservation plan.**

Criterion 4: **Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or**

Criterion 5: **Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.**

METHODOLOGY AND ASSUMPTIONS

This EIR analysis considers Proposed Plan policies and goals; existing and proposed land use, housing, and economic conditions within St. Helena; and applicable regulations and guidelines.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to land use, population, and housing in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to land use, population, and housing in the study areas. Cumulative impacts related to land use, population, and housing are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMTING ACTIONS

The following policies and implementing actions of the General Plan Update are relevant to land use and planning impacts as defined by the significance criteria above:

Land Use and Growth Management Element

- ***LU1.1*** Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building and stormwater management and paying its share of development impact fees, while minimizing impacts on sewer, water, energy, and natural resources.
- ***LU1.2*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water, and storm drainage, will only be extended to development within the Urban Limit Line.

  The Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies or when logical to include developed lands receiving urban services from the City. Expansion outside the Urban Limit Line should first be considered in Urban Reserve Areas. Expansion into other areas outside the Urban Limit Line should be considered only when the proposed land use is found to further the goals and long-term objectives of the City and does not result in adverse impacts to adjacent uses in either the urban or rural areas.
- ***LU1.4*** In order to minimize and postpone the need for expansion of the Urban Limit Line, encourage infill development within currently developed areas. ***LU1.6*** Support the redevelopment of vacant and underutilized sites within the downtown area with mixed-use development opportunities. Encouraging infill development with a mix of uses will support a pedestrian-oriented, vibrant retail and commercial district that is centrally located and easily accessible to residents and neighborhoods.
- ***LU1.7*** Continue to limit the approval of market rate residential development to the maximum allowed under the Growth Management System.
- ***LU1.A*** Continue to allow the construction of second units – also known as accessory dwelling units – and consider allowing the division of single-family homes into two or more units under appropriate circumstances, in order to increase residential density and housing availability without requiring an extension of the Urban Limit Line.
- ***LU1.B*** Rezone appropriate sites with land use designations such as Central Business, Service Commercial, and Mixed-Use, in accordance with the General Plan Land Use Map. Include provisions to allow for compatible uses on the same site, either in one structure or adjacent structures. The mix of uses can be vertical or horizontal and can include attached residential development in keeping with the integrity of historic structures and historic districts.
- ***LU1.C*** Continue to update the City's housing inventory to track the status of residential growth by unit type and affordability level.

- ***LU1.D*** Review the City's housing needs every five to eight years in conjunction with updates to the Housing Element to reassess housing priorities for the future years.
- ***LU1.E*** Restrict the use of housing units as short-term rentals, except for those allowed by the Short-Term Rental Ordinance. ***LU2.1*** Promote a mix of housing types and price ranges that are consistent with the Housing Element RHNA categories of housing affordability.
- ***LU2.5*** Encourage the development of higher density housing in areas near the center of the city and close to recreation and services, such as transit, retail, and public facilities.
- ***LU2.6*** Allow residential density at the higher end of the permitted range for single family development within Medium and High Density Residential Land Use designations as long as the development character of the single family area is maintained, including lot widths, orientation to street, building heights, onsite parking, traffic, and noise, among other considerations.
- ***LU2.7*** Ensure safe, walkable, and bikeable residential neighborhoods and vibrant, livable streets.
- ***LU2.A*** Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.
- ***LU3.B*** Establish an inventory of all non-residential uses in the city and a program for monitoring future non-residential development. Combine this inventory with efforts to balance jobs and housing.
- ***LU4.A*** Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.
- ***LU5.2*** Encourage the County to continue to promote agricultural uses and to limit further development in unincorporated areas surrounding the city..
- ***LU5.A*** Update the zoning ordinance and map to be compatible with the General Plan land use map and designations.

Economic Sustainability Element

- ***ES1.4*** Encourage the creation of workforce housing to support the local employment base in keeping with small town smart growth.

Circulation Element

- ***CR1.1*** Promote a connected street and bicycle and pedestrian network within the city to provide better internal automobile, bicycle, and pedestrian connections for residents.
- ***CR1.K*** Adopt and implement a citywide, Multimodal Transportation Mitigation Fee program to provide funding on a fair share bases for transportation improvements that reduce citywide automobile trips and contribute to the provision of a continuous path of travel for walking and bicycling from the development site to the center of downtown and other key destinations. Such transportation improvements include completing the bicycle and pedestrian network, implementing transportation demand and systems management strategies, and improving traffic signal coordination on State Route 29. Ensure that fees

take into consideration the contribution of new development to changes in net new automobile trips and change in travel time along State Route 29.

- ***CR2.1*** Create a comprehensive bicycle and pedestrian network that enhances neighborhood connectivity.

Community Design Element

- ***CD6.1*** Ensure a connected circulation system that maximizes pedestrian and bicycle connectivity.
- ***CD6.2*** Promote the inclusion of bicycle and pedestrian trails and bicycle lanes throughout the City, as well as connections to regional trail systems, such as the Napa Valley Vine Trail. (Also see the Parks and Recreation and Circulation elements for additional policies and implementing actions relating to bicycle and pedestrian trails and amenities.)

Housing Element

- ***HE1.1*** Ensure that the General Plan's Growth Management Policies do not limit our ability to meet regional housing needs.
- ***HE1.2*** Focus on key opportunity sites and work with property owners and developers to facilitate development of new affordable housing.
- ***HE1.4*** Address workforce housing needs by supporting an improved jobs/housing "match."
- ***HE1.A*** Continue to exempt permits for regulated affordable units as well as second units from the Growth Management System. The objective is to accommodate production to meet the Regional Housing Needs Allocation (RHNA) of 31 housing units (8 units for very low-income households, 5 for low-income households, 5 for moderate-income households, and 13 for above moderate-income households). Developers shall be encouraged to propose projects that meet this need.
- ***HE1.B*** Review and possibly amend the Growth Management System to encourage the production of regulated affordable and workforce housing units. Review the Growth Management System (GMS) to make sure that it is not disproportionately affecting the development of affordable housing. Exemptions for restricted "workforce" housing units should be explored, and adopt as appropriate, in addition to current exemptions for affordable housing units. Continue to allow a maximum of 9 market rate units per year and priority allocation of annual building permit allocations and carryover permits to market rate units in development projects that include a minimum of 40 percent affordable units.
- ***HE1.C*** Give projects that include affordable housing units priority access to water and sewer resources over other new projects should the capacity of the local water or sewer systems become inadequate to meet the full demand for new connections.
- ***HE2.1*** Encourage higher density development where appropriate.
- ***HE2.4*** Promote second unit production.
- ***HE2.5*** Allow conversion of single-family homes to multi-unit dwellings.

- ***HE2.A*** Provide incentives for higher density housing. Explore possible incentives for building attached market rate housing units for rent and for sale. Incentives to adopt as appropriate include, but are not restricted to, fast tracking development applications, deferred development fees, reduced parking and/or other city standards, and density bonuses.
- ***HE2.B*** Study potential modifications to the Zoning Ordinance to facilitate higher density housing [and discourage construction of oversize homes]. Modify the Zoning Ordinance to encourage higher density developments [and restrict construction of large single-family units], including current floor area ratios and yard and setback requirements.
- ***HE2.C*** Amend regulations to discourage exemptions from the minimum density requirements. The City shall discourage exemptions for minimum density requirements and establish mitigation measures for exemptions in the Zoning Ordinance.
- ***HE2.D*** Modify section 17.100 of the Zoning Ordinance to rename the Mobilehome Park Overlay District to "Manufactured Housing Overlay District." Develop policies to streamline the review process for this overlay district on residential land for projects that create land-ownership opportunities for residents. Support giving residents the right of first refusal if an existing park is to be sold.
- ***HE2.E*** Amend the "Subdivisions" section of the Municipal Code. The City will amend Title 16 of the Municipal Code to prevent subdivision activity from effectively resulting in lower densities and a loss of potential housing units on the site.
- ***HE2.I*** Review and revise development standards pertaining to second units. Ensure that the development of second units is physically and financially feasible in targeted areas. Give particular attention to parking standards, setbacks, and impact fees.
- ***HE2.J*** Provide financial incentives for second unit development. Incentives might include low interest loans or fee waivers.
- ***HE2.K*** Target specific areas for second unit incentives. Create incentives to construct second units in the medium density areas near downtown. Incentives to adopt as appropriate include, but are not restricted to, fast tracking development applications, deferred development fees, and reduced parking and/or other city standards.
- ***HE2.O*** Identify appropriate 'target' areas for conversion of single-family homes to multi-unit dwellings. Identify areas, zoning districts, or specific sites where conversion would be appropriate or desirable.
- ***HE2.P*** Develop a program to encourage affordable housing in clusters of 4-6 units on Infill parcels on west side of town. The City will post an inventory of potential sites on the City's web site. In addition the City will explore and adopt as appropriate incentives to encourage affordable housing clusters, including, but not limited to priority permit processing, reduced or waived development fees, reduced parking and/or other city standards, and an additional density bonus.
- ***HE3.1*** Protect the existing stock of affordable and market rate housing.
- ***HE3.B*** Charge an affordable housing impact fee whenever housing units are converted to other uses. Exempt conversion projects that create affordable for-sale housing from this impact fee.

- ***HE3.C*** Address the potential loss of assisted units. Identify assisted properties at risk of conversion to market rates and work with the property owners and/or other parties to ensure that they are conserved as affordable housing.
- ***HE3.D*** Continue to limit the conversion of market rate housing to vacation rentals. Abate the use of illegal vacation rentals, including time shares and fractional interests.

IMPACTS

Impact 3.10-1 Implementation of the Proposed Plan would not physically divide an established community. (*No Impact*)

The physical division of an established community typically refers to the construction of a linear feature, such as an interstate highway or railroad tracks, or removal of a means of access, such as a local bridge that would impact mobility within an existing community of between a community and outlying area. The Proposed Plan does not involve any such features, and would not remove any means of access or impact mobility.

While the Proposed Plan does not involve the construction of physical features that could divide a community, it still contains policies and implementing actions encouraging increased connections throughout the Planning Area. Policies LU2.7, CR1.1, CR2.1, CD6.1, and CD6.2 and Implementing Action CR1.K aim to create better connections for pedestrians and bicycles both within the City of St. Helena and regionally.

As no features within the Proposed Plan would physically divide a community, and the Plan contains policies and implementing actions to increase connectivity, there would be no impact under this provision from the Proposed Plan.

Mitigation Measures

None required.

Impact 3.10-2 Implementation of the Proposed Plan would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Plan (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (*No Impact*)

Conflicts with Existing City of St. Helena Plans, Policies or Regulations

Since the Proposed Plan updates policies and land use designations for future development and would replace the 1993 General Plan, it may naturally be inconsistent with existing planning regulations outside of the proposed General Plan, such as density/intensity standards, zoning, and allowed uses, that were designed to implement the 1993 General Plan. These existing regulations would be updated to be consistent with and/or effectively implement the Proposed Plan, if it were adopted. Additionally, the City's Zoning Ordinance would be revised to implement the Proposed Plan, as required by State law (Government Code Section 65860[a]), and it would translate the proposed General Plan policies into specific use regulations, development standards, and performance criteria to govern development on individual properties. The Zoning Ordinance will

ultimately prescribe standards, rules, and procedures for development and the Zoning Map will provide more detail than the proposed General Plan Land Use Diagram.

In general, City of St. Helena zoning districts are similar to the land use designations in the Proposed Plan. Table 3.10-3 lists land use designations in the Proposed Plan and the corresponding zoning districts. As shown in the table, the only land use designation for which there is currently no corresponding zoning district is the proposed Mixed-Use land use designation. In order to maintain consistency with the General Plan, the Zoning Ordinance update will need to include establishment of a mixed-use zoning district and/or provide for other changes to the Zoning Ordinance.

Table 3.10-6: Proposed General Plan Update Land Use Designations and Corresponding Zoning Districts

Land Use Designation	*Allowable Uses*	*Allowable Density/ Intensity*	*Corresponding Zoning District*
Low Density Residential	Single-family detached homes, secondary residential units and limited agricultural uses	1.0 to 5.0 dwelling units per acre	LR: Low Density Residential LR-1A: Low Density Residential 1-Acre Minimum
Medium Density Residential	Single-family detached and attached homes and secondary residential units	5.1 to 16.0 dwelling units per acre	MR: Medium Density Residential
Higher Density Residential	Single-family and multi-family housing, including apartments, townhouses, and group homes	16.1 to 28.0 dwelling units per acre	HR: High Density Residential
Mixed-Use	Medium density residential mixed with retail, office, restaurant, or other local-serving uses	Up to 20 dwelling units per acre; maximum FAR 1.0	None (To be established)
Central Business	Retail and commercial businesses that serve residents and visitors, including restaurants, lodging, retail, office, etc.	Maximum FAR 2.0 with off-site parking	CB: Central Business
Service Commercial	Retail and service uses that are local-serving and may be auto-oriented, including offices, restaurants, service stations, etc.	Maximum FAR 0.50	SC: Service Commercial
Business and Professional Office	Administrative and professional office uses, including medical, financial, etc.	Maximum FAR 0.50	BPO: Business and Professional Office

Table 3.10-6: Proposed General Plan Update Land Use Designations and Corresponding Zoning Districts

Land Use Designation	*Allowable Uses*	*Allowable Density/ Intensity*	*Corresponding Zoning District*
Industrial	Industrial parks, warehouses, light manufacturing, auto and farm-related uses	Maximum FAR 0.50	I: Industrial
Open Space	Natural open spaces devoted to natural resource preservation and management, outdoor recreation, public health and safety	N/A	OS: Open Space
Parks and Recreation	Parks and public recreation uses	N/A	PR: Parks and Recreation
Public and Quasi-Public	Government-owned facilities, schools, churches, cemeteries, etc.	Maximum FAR 0.50.	PQP: Public and Quasi-Public
Woodland and Watershed	Very low density residential that ensures protection of wildlife, vegetation, open space, and watershed resources	Minimum parcel size 5 acres	WW: Woodlands and Watershed
Agriculture	Agricultural and winery uses with restricted single-family residential	Minimum parcel size 5 to 40 acres	A-20: Twenty-Acre Agriculture W: Winery AP: Agricultural Preserve
Overlay Zones (Can implement any General Plan designation in combination with base zone district)			
RR: Rural Residential			
SP: Specific Plan			
FP: Flood Plain			
HP: Historic Preservation			
PD: Planned Development			
MHP: Mobilehome Park			
PI: Parking Impact			

Sources: City of St. Helena, 2018; Dyett & Bhatia, 2018

In addition to the Zoning Ordinance, the Proposed Plan is consistent with the City of St. Helena's growth plans, including the ULL and the Residential Growth Management System, as the majority of development encouraged under the Proposed Plan is within the ULL and does not anticipate development of more than nine market-rate housing units per year. Any development outside of the ULL would be agricultural or rural residential, and therefore would be low-density and would not change the land uses and character of these outlying areas. Development is not located near creeks in a manner that would violate the City's regulations on creek setbacks.

Implementing Actions LU1.B, LU2.A, LU4.A, and LU5.A address updating the Zoning Ordinance to be consistent with the Proposed Plan. Policies LU1.1, LU1.2, LU1.4, LU1.7, and LU5.2 encourage development only within the ULL and that adheres to the City's Residential Growth Management System.

Due to policies and implementing actions within the Proposed Plan, there would be no conflict with existing City of St. Helena plans, policies, or regulations.

Conflicts with Applicable Land Use Plans, Policies, and Regulations from other Jurisdictions and Regulatory Agencies

The Proposed Plan would not conflict with any applicable land use plans, policies, or regulations of outside agencies with jurisdiction in St. Helena. The City of St. Helena is the primary agency with jurisdiction over the city limits, and the Proposed Plan would represent the primary land use plan applicable to the area. In addition to the City of St. Helena, the CPUC has jurisdiction over the railroad right-of-way and Napa County has jurisdiction over the study areas located in unincorporated Napa County. As the Proposed Plan does not encourage any development in the railroad right-of-way or in the three study areas, the Proposed Plan does not conflict with other agency's plans, policies, or regulations.

Potential development outlined in the Proposed Plan (approximately 332 new housing units in the city by 2040) is also consistent with ABAG's RHNA. Policies and implementing actions included in the Proposed Plan, such as LU1.D and LU2.1 would limit the rate of residential development, while providing for development of affordable housing, at a rate that exceeds the RHNA for the City of St. Helena.

Due to consistency with existing plans, policies, and regulations from other agencies with jurisdiction in the Planning Area, as well as policies and implementing actions within the Proposed Plan, there is no impact resulting from a conflict with an applicable land use plan, policy, or regulation.

Mitigation Measures

None required.

Impact 3.10-3 Implementation of the Proposed Plan would not conflict with any applicable habitat conservation plan or natural community conservation plan (*No Impact*)

A significant impact could occur if development under the Proposed Plan occurred in locations that are governed by an applicable habitat conservation or natural community conservation plan. However, there are no applicable habitat conservation plans or natural community conservation plans within the Planning Area. (See also Section 3.4, Biological Resources, of this EIR.) The closest natural community conservation plan is the Yolo County NCCP/HCP located east of Lake Berryessa. As there are no such applicable plans within or in close proximity to the Planning Area, the Proposed Plan has no impact.

Mitigation Measures

None required.

Impact 3.10-4 Implementation of the Proposed Plan would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). (*Less Than Significant*)

The Proposed Plan could induce population growth in the City of St Helena. As discussed in Chapter 2, Project Description, the 2040 buildout is projected to include an estimated 746 new residents and 332 new housing units in the city by 2040. Estimated population at buildout falls between projections developed by ABAG and DoF. An additional 150 residents and 51 new housing units are projected in the study areas, though this growth is not attributed to the Proposed Plan. Additional population and housing units in the study areas is the result of continued growth in unincorporated Napa County, which has jurisdictional control over these areas. In total, the Planning Area is projected to increase by 896 residents and 383 housing units by 2040.

The 746-person population increase through 2040 represents an average annual growth rate of 0.6 percent. Considering that the City of St. Helena experienced a slight decrease in population between 2000 and 2010, the growth rate from 2018 to build out is comparable to the 0.2 percent average annual growth rate observed between 2000 and 2018.

Growth projected under the build out scenario is consistent with the Residential Growth Management System referenced in the Regulatory Setting section above, which allows a maximum of nine new market rate residential units to be constructed within a calendar year (subject to the constraints listed above). Development under the Proposed Plan is concentrated within the ULL as infill, which is consistent with state regulations, including SB375 and regional plans, such as Plan Bay Area, which call for growth in compact development and limits sprawl, thereby reducing the impacts of development. Limited amounts of new development may occur outside of the ULL in agricultural or rural residential land use areas, however, this development would be at a density consistent with existing development in the more rural parts of the city.

Policies and Implementing Actions included in the Proposed Plan would limit the rate of residential development (Policy LU1.7) provide for development of affordable housing (Implementing Actions LU1.A and LU1.C, Policies HE1.1 and HE1.2), encourage infill development (LU1.1, LU1.4, LU1.6), and seek to achieve a balance of jobs and housing (Implementing Action LU3.B, Policy ES1.4, Policy CC1.2, Policy HE1.4, and Implementing Actions HE1.A, HE1.B, HE1.C, HE1.E, and HE2.Q), thus helping to reduce the environmental impacts of population growth and the development needed to accommodate it to a less than significant level.

Mitigation Measures

None required.

Impact 3.10-5 Implementation of the Proposed Plan would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere. (*Less than Significant*)

Development under the Proposed Plan could result in the displacement of existing residents or housing units if new development raised housing costs throughout St. Helena or called for the demolition or redevelopment of existing housing. However, the majority of developed land within the city is composed of residential and agricultural uses that are not anticipated to undergo substantial land use changes under the Proposed Plan. Additionally, the Proposed Plan does not propose converting established residential areas to non-residential land uses or changing the development character of existing developed residential areas.

Overall, the Proposed Plan is expected increase the number of dwelling units within the City of St. Helena. Additional growth is expected within the Study Areas, but not as a direct result of the Proposed Plan. The projected 332 new housing units within the city can accommodate the expected population growth of 746 residents with an average household size consistent with the 2018 baseline.

Despite additional housing, as shown in the Environmental Setting section above, a substantial portion of St. Helena residents are burdened by housing costs, as defined as paying more than 30 percent of household income towards housing costs. Therefore, increasing the supply of housing may not meet the housing needs of the residents. While the number of permits issued for market-rate housing units within the City of St. Helena is limited to nine per year, the number of affordable housing units is not capped. If there is additional demand for affordable housing, the Residential Growth Management System allows this demand to be met. The Proposed Plan assumes a total of 15 new housing units per year, which includes nine market-rate and six affordable units. This is greater than the amount of housing outlined in ABAG's RHNA.

State and local regulations aim to reduce displacement and protect existing residents. AB317 and the Napa County Housing Authority (NCHA) provide housing for migrant and non-migrant farm workers in Napa County. This housing is provided through three publicly owned and operated farm worker housing centers in the County, one of which is located in St. Helena. The centers are funded through assessments on large vineyards.

Policies and implementing actions in the Proposed Plan aim to ensure that the new housing serves the diverse needs of the community, with affordable, senior, and multi-family housing. Policy HE2.4 and Implementing Actions LU1.A, HE2.I, HE2.J, and HE2.K encourage development of accessory dwelling units. Policies LU2.5, LU2.6, HE2.1, HE.2.2, and HE2.5, and Implementing Actions HE2.A, HE2.B, HE2.C, HE2.E, HE2.O, and HE2.P encourage development at higher densities. Policies HE3.1 and HE3.2, as well as Implementing Actions LU1.E, HE2.D, HE.3.A, HE3.B, HE3.C, and HE3.D encourage the protection of the existing housing stock, including affordable housing and mobile homes. Policies LU1.2 and ES1.4 encourages the creation of workforce housing to reduce the city's jobs-housing imbalance and support the local employment base.

With adherence to existing regulations and implementation of policies and actions within the Proposed Plan, no net population or housing displacement would be expected, and any potential displacement of existing residents and housing units would be reduced to a less than significant level.

Mitigation Measures

None required.

3.11 Noise

This section assesses potential environmental impacts related to noise from future development under the Proposed Plan, including those associated with noise standards, groundborne vibration, ambient noise levels, and airport noise. The section describes the characteristics, measurement, and physiological effects of noise; characteristics of groundborne vibration; and existing sources of noise and vibration in the Planning Area, as well as relevant federal, State, and local regulations and programs.

There was one comment on the Notice of Preparation related to noise. The commenter requested that potential development in the industrial zone on the southeast side of the city be examined for potential noise impacts. Issues relevant to this area are discussed in this section in terms of stationary and traffic noise.

Environmental Setting

PHYSICAL SETTING

Noise

Noise Characteristics and Measurement

Noise is generally defined as unwanted sound and can consist of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. The classification of sound as noise is subjective and relies heavily on the quality and context of the sound.

The objectionable nature of noise may be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the frequency of the vibrations that produce the sound. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear and is measured by the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. Thus, an increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, and so on. There is a relationship between the subjective noisiness or loudness of a sound

and its intensity. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 3.11-1.

Table 3.11-1: Definitions of Acoustical Terms

Term	*Definitions*
Decibel (dB)	A unit describing the amplitude of sound, equal to 10 times the logarithm to the base 10 of the ratio of two like quantities.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de- emphasizes low and high frequency components of the sound in a manner similar to the frequency response of the human ear.
Equivalent Noise Level (Leq)	The average A-weighted sound level during the measurement period.
Lmax, Lmin	The maximum and minimum A-weighted sound level during the measurement period with the sound meter using the fast time weighting.
L01, L10, L50, L90	The A-weighted sound levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level (DNL)	The average A-weighted sound level during a 24-hour day, obtained after the addition of 10 decibels to levels measured at night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The sound level measured in the absence of an intrusive or extraneous noise.
Intrusive Noise	The noise from a source of specific origin which intrudes above the existing background sound level. The degree of intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence and tonal or informational content as in contrast to the prevailing background sound level which exists in the absence of the intrusive noise.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 3.11-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq. The most common averaging period is hourly, but Leq can describe any series of noise events of arbitrary duration.

Table 3.11-2: Typical Noise Levels in the Environment

Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
Jet fly-over at 1,000 feet	110 dBA	Rock band
Gas lawn mower at 3 feet	100 dBA	Food blender at 3 feet
Diesel truck at 50 feet at 50 mph	90 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime	80 dBA	Vacuum cleaner at 10 feet
Gas lawn mower, 100 feet	70 dBA	Normal speech at 3 feet
Commercial area Heavy traffic at 300 feet	60 dBA	Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime	30 dBA	Library
Quiet rural nighttime	10 dBA	Bedroom at night, concert hall (background)

Source: Technical Noise Supplement (TeNS), Caltrans, September 2013

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Sensitivity to noise increases during the evening and at night, because excessive noise interferes with the ability to sleep. In order to capture the heighted sensitivity to noise during evening hours, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5-dB penalty added to evening (7:00 PM to 10:00 PM) and a 10 dB-addition to nocturnal (10:00 PM to 7:00 AM) noise levels. The Day/Night Average Sound Level, DNL, is essentially the same as CNEL, with the exception that the evening time period (7:00 PM to 10:00 PM) is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Audible increases (increases that are noticeable to humans) in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior environments. Changes in the noise level between 1 and 3 dB has been found to be noticeable only in laboratory environments, and changes in noise level of less than 1 dB are inaudible to the human ear.

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of

the heart and the nervous system. Extended periods of noise exposure above 90 dBA would result in permanent cell damage; at 120 dBA, sound levels reach the threshold of feeling in the ear; at 140 dBA, sound levels reach the threshold of pain; and a sound level of 160 to 165 dBA will potentially result in dizziness or loss of equilibrium.

Noise-Sensitive Receptors

Noise-sensitive receptors are land uses where the presence of unwanted sound could adversely affect the use of the land. Examples include residential areas, senior and child care facilities, schools, and religious facilities.

Sources of Noise

In the Planning Area, sources of noise include major roadways, land uses that rely on heavy equipment, the Napa Valley Wine Train, and intermittent sources. Common sources of noise are described below.

Traffic

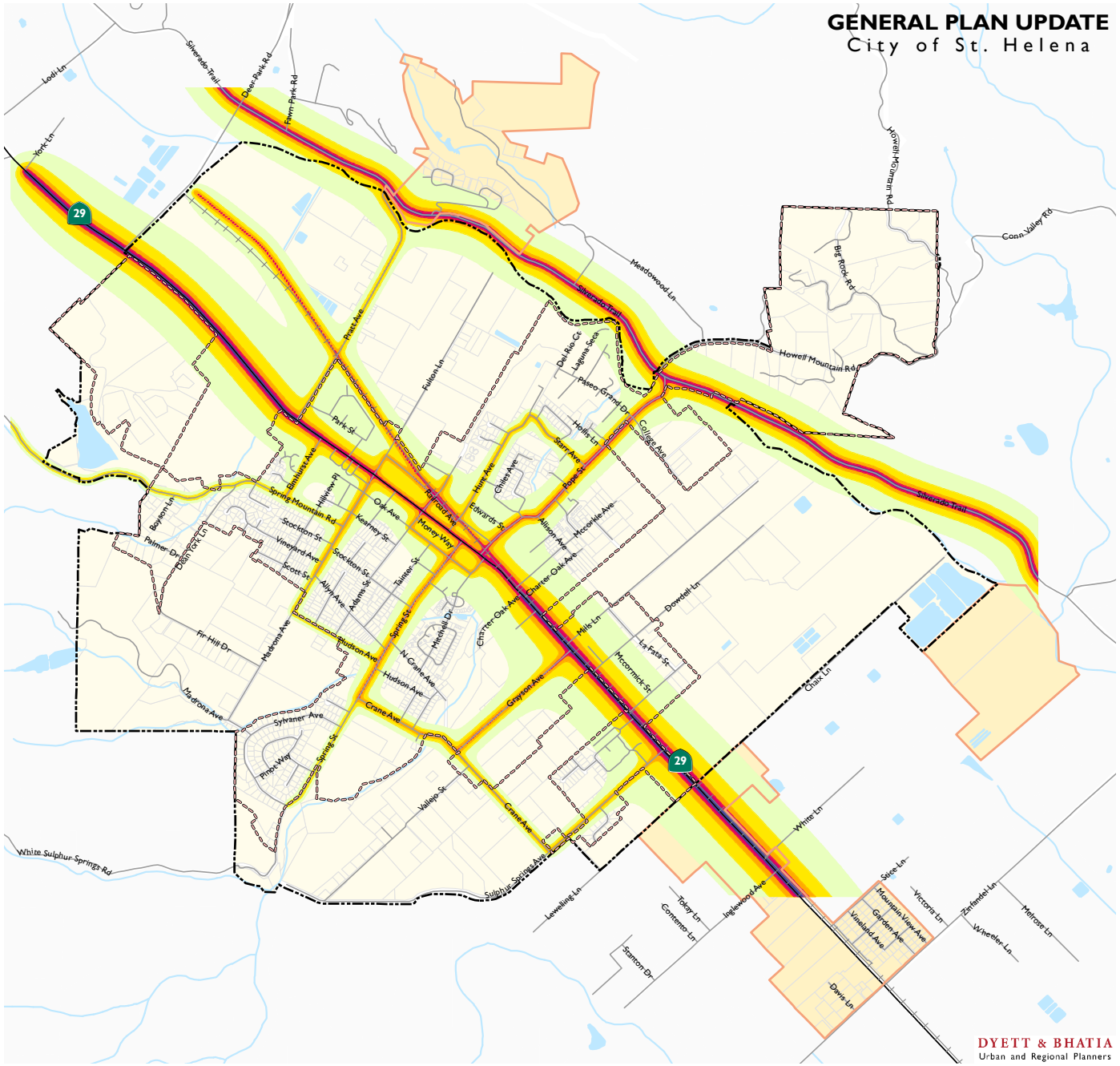
Traffic noise levels generally depend on three major factors: the volume of traffic, the speed of traffic, and the number of trucks in the flow of traffic. Vehicle noise is a combination of the sounds produced by the engine, exhaust, tires, and the wind generated by taller vehicles. Other factors that affect the perception of traffic noise include distance from the roadway, terrain, vegetation, and natural and structural obstacles.

Major sources of transportation noise in the Planning Area include SR 29 and major roadways such as Silverado Trail, Starr Avenue, Railroad Avenue, Oak Avenue, Valley View Street, Elmhurst Avenue, Madrona Avenue, Fulton Lane, Adams Street, Hunt Avenue, Mitchell Drive, Pope Street, Spring Street, Grayson Avenue, and Sulphur Spring Avenue. Figure 3.11-1 shows existing noise contours for major streets in the Planning Area based on traffic volumes (see Section 3.13: Transportation for more information on traffic measurement and modeling) and a noise survey conducted between May 29 and June 2 of 2018. Noise survey locations are shown in Figure 3.11-2. Table 3.11-3 shows existing noise levels at 50 feet from the roadway centerline for major roads in the Planning Area.

Figure 3.11-1

Existing Noise Contours

- DNL 55 - 60 dB
- DNL 60 - 65 dB
- DNL 65 - 70 dB
- DNL 70 - 75 dB
- DNL 75 - 80 dB
- Urban Limit Line
- Study Areas
- City of St. Helena

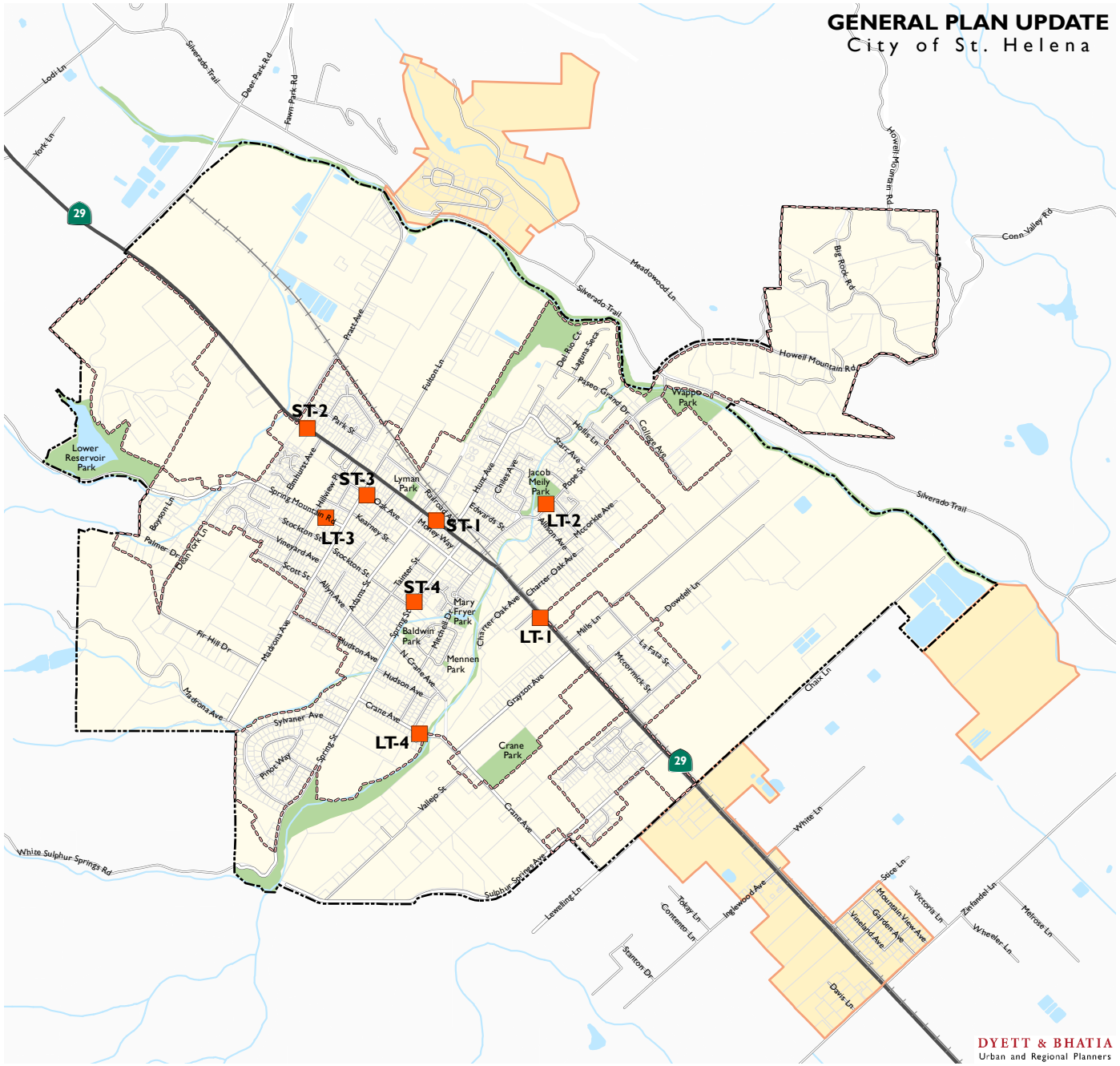


Data Source: Charles M. Salter Associates, Inc, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

Figure 3.11-2

Noise Measurment Locations

- Noise Measurement Locations
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena


GENERAL PLAN UPDATE
City of St. Helena
ST-1
ST-2
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Silverado Trail
Howell Mountain Rd
Lower Reservoir Park
Lyman Park
Jacob Meily Park
Mary Fryer Park
Baldwin Park
Mennen Park
Crane Park
Wappo Park
Pratt Ave
Fulton Ln
Park St
Oak Ave
Kearney St
Hunt Ave
Chiles Ave
Edwards St
Allison Ave
Mcconkie Ave
Charter Oak Ave
Dowdell Ln
Mills Ln
Grayson Ave
Crane Ave
Hudson Ave
Spring St
Adams St
Stockton St
Vineyard Ave
Scott St
Madrona Ave
Fir Hill Dr
Sylvaner Ave
Pinot Way
Valley St
White Sulphur Springs Rd
Sulphur Springs Ave
Lewelling Ln
White Ln
Inglewood Ave
Victoria Ln
Zinfandel Ln
Melrose Ln
Wheeler Ln
Davis Ln
Howell Mountain Rd
Conn Valley Rd
Silverado Trail
Meadowood Ln
Deer Park Rd
Fawn Park Rd
Lodi Ln
York Ln
Bayson Ln
Palmer Dr
Dean Tor Ln
Hillview Dr
Spring Mountain Rd
Rafrano Ln
Hollis Ln
Starr Ave
Pope St
College Ave
Paseo Grand Dr
Del Rio Ct
Laguna Seca
Big Rock Rd
Chiles-Pope Valley Rd
Chiles Valley Rd
Foothill Blvd
Silverado Trail
Howell Mountain Rd
Conn Valley Rd

Table 3.11-3: Existing Traffic Noise Levels (2018)

#	*Roadway*	*Segment*	*Existing Noise Level at 50'of Centerline (DNL in dB)*
1	Main Street	North of Pratt Avenue	72
2	Main Street	Pratt Avenue to Elmhurst Avenue	70
3	Main Street	Elmhurst Avenue to Madrona Ave./Fulton Ln.	70
4	Main Street	Madrona/Fulton to Adams Street	66
5	Main Street	Adams Street to Hunt Avenue	66
6	Main Street	Hunt Avenue to Pope St./Mitchell Dr.	66
7	Main Street	South of Pope Street	70
8	Main Street	North of Mills Lane	73
9	Main Street	South of Grayson Avenue	73
10	Main Street	North of Sulphur Springs Avenue	72
11	Main Street	South of Sulphur Springs Avenue	73
12	Silverado Trail	North of Howell Mountain Road	71
13	Silverado Trail	South of Howell Mountain Road	71
14	Starr Avenue	Hunt Avenue to Pope Street	60
15	Railroad Avenue	Fulton Lane to Adams Street	63
16	Railroad Avenue	Adams Street to Hunt Avenue	64
17	Oak Avenue	North of Mitchell Drive	61
18	Spring Mountain Road	North of Elmhurst Avenue	59
19	Spring Mountain Road	Elmhurst Avenue to Hillview Place	59
20	Spring Mountain Road	Hillview Place to Madrona Avenue	58
21	Hudson Avenue	Madrona Avenue to Spring Street	59
22	Valley View Street	Spring Street to Grayson Avenue	63
23	Valley View Street	Grayson Avenue to Sulpher Spring Avenue	60
24	Pratt Avenue	East of Main Street	59
25	Elmhurst Avenue	Spring Mountain Road to Main Street	60
26	Madrona Avenue	East of Hudson Avenue	59
27	Madrona Avenue	West of Spring Mountain Road	63
28	Madrona Avenue	Spring Mountain Road to Main Street	63
29	Fulton Lane	Main Street to Railroad Avenue	62
30	Adams Street	West of Main Street	64
31	Adams Street	Main Street to Railroad Avenue	64
32	Adams Street	Railroad Avenue to Library Lane	62

Table 3.11-3: Existing Traffic Noise Levels (2018)

#	*Roadway*	*Segment*	*Existing Noise Level at 50'of Centerline (DNL in dB)*
33	Hunt Avenue	Main Street to Railroad Avenue	60
34	Hunt Avenue	Railroad Avenue to Starr Avenue	60
35	Mitchell Drive	Oak Avenue to Main Street	62
36	Pope Street	Main Street to Starr Avenue	65
37	Pope Street	Starr Avenue to College Ave./Paseo Grande Dr.	66
38	Pope Street	College Ave./Paseo Grande Dr. to Silverado Trail	65
39	Spring Street	West of Valley View Street	59
40	Spring Street	East of Valley View Street	65
41	Grayson Avenue	Crave Ave./Valley View St. to Main Street	64
42	Sulphur Spring Avenue	Crane Avenue to Main Street	62

Notes:
1. Traffic volumes are per Fehr & Peers data received August 1, 2018.
2. Truck percentage assumed to be 2% for all roadways.
3. Speeds are estimated based on roadway type.

Source: Charles Salter Associates, 2018

Railway

The Napa Valley Wine Train is a source of railway noise as it passes through the Planning Area. The Wine Train makes up to two round trips per day, one during lunch and one during dinner (Napa Valley Wine Train, 2015), for a total of four one-way trips through the city. The railroad tracks roughly parallel Main Street in the south and central portions of the city and diverge near Pope Street, continuing northward to the terminus of the railroad line at about Pratt Avenue.

The most significant source of noise associated with the Wine Train is the train warning whistle. Unless a "quiet zone" has been established, trains that travel at a speed less than 45 mph are required to sound their warning whistle at all public grade crossings at least 15 seconds but not more than 20 second before entering a crossing to warn pedestrians and motorists of the oncoming train. These warning whistles can produce maximum noise levels up to 110 dBA Lmax at 50 feet. The sound produced by the Wine Train warning whistle is audible throughout the community.

Assuming one train passby per hour (significantly greater than the actual occurrence but accommodating for any future expansion of services), Napa Valley Wine Train operations generate an hourly average noise level of 66 dBA Leq at a distance of 50 feet from the tracks. Day-night average noise levels are calculated to be 64 dBA Ldn at a distance of 50 feet from the tracks assuming four trips per day between the hours of 7:00 a.m. and 10:00 p.m. Although the Wine Train travels at a relatively slow speed throughout St. Helena, the train is a source of perceptible groundborne vibration. Assuming a travel speed of about 20 mph, groundborne vibration levels

would be expected to be perceptible within approximately 50 to 75 feet from the center of the tracks.

Aircraft

The closest airport to St. Helena is Angwin-Parrett Field Airport, located approximately 4 miles northeast of the city limits. Aircraft operating out of this airport, as well as others in the Bay Area, intermittently contribute to ambient noise levels in the city. Aircraft based at Angwin-Parrett Field Airport include 38 single-engine airplanes, four multi-engine airplanes, and two ultralights. The airport averages about 27 aircraft operations per day (AirNav.com, 2016). Approximately 80 percent of aircraft operations are local general aviation and 20 percent are transient general aviation. Noise generated by these overflights, although audible and noticeable at times, does not measurably affect daily average noise levels in the city.

The nearest private airstrip to the Planning Area is Pope Valley Airport. There is one multi-engine aircraft based on the field and aircraft operations is 24 local general aviation operations per year (AirNav.com, 2018). Activity at small private landing strips is highly variable, thus it is generally not practical to develop CNEL contours for these airstrips. The 2007 Draft EIR for the Napa County General Plan provides data for typical sounds generated by small aircraft that may utilize private airstrips as a function of distance, shown in Table 3.11-4.

Table 3.11-4: Typical Sound Levels Generated by Small Aircraft (dBA)

Slant Distance (feet)	*Single Engine Takeoff*	*Single Engine Landing*	*Twin Engine Takeoff*	*Twin Engine Landing*
500	74	66	80	72
1,000	71	63	77	69
2,000	67	59	73	65
4,000	63	55	69	61
8,000	58	50	64	56

Source: Napa County, BDR, 2005 (from the 2007 Draft EIR for the Napa County General Plan Update)

Noise from Agricultural Activities

Agricultural activities in the Planning Area can be sources of intermittent noise. For example, high noise levels are generated by wind machines used for agriculture in the early spring, with noise levels of approximately 90 dBA at nearby residential receptors. Tractors and sulphur blowers that are also employed in the vineyards in the early hours of the morning create other agricultural-related noise.

Stationary Noise Sources

The predominant stationary noise source in the City of St. Helena is the concrete batch plant owned and operated by Harold Smith & Son, Inc. located at 800 Crane Avenue. Noise generated by this facility includes the sounds generated by the plant itself as well as the operation of trucks and other heavy equipment located on the site.

Noise is also generated on individual parcels whether industrial, commercial, or residential. These smaller sources of noise do not negatively affect the overall noise environment throughout the community.

Other Noise Sources

Other existing sources of noise include commercial, recreational, and school uses. Noise sources associated with commercial uses include mechanical equipment, as well as activities associated with parking lots, loading docks, and drive-throughs. Mechanical equipment is used extensively in buildings to provide heating, cooling, air circulation, and water supply. Mechanical equipment that produces noise includes motors, pumps, and fans. Although noise levels from these sources are generally low at nearby properties, such sources may operate continuously and may include pure tones that make them audible and sources of annoyance at a substantial distance.

Intermittent or temporary noise sources include portable power equipment such as leaf blowers, lawn mowers, portable generators, electric saws and drills the municipal fire siren (located adjacent to the City fire station) operated to alert the St. Helena Fire Department of emergency events and other similar equipment. The sirens sound on an average of two to three times per day, with approximately half of these soundings occurring during nighttime hours. Siren sound levels exceed 100 dBA at residences near the sirens and drop off to around 55 dBA at distant residential areas. Although these noise sources are typically short in duration, they are often loud and can be sources of annoyance.

Groundborne Vibration

Vibration Characteristics and Measurement

Ground vibration consists of rapidly fluctuating motions or waves. Several methods, including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity, are typically used to quantify the amplitude of vibration. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal. PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Factors that influence groundborne vibration and noise include the following:

- **Vibration Source.** Vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure, and depth of vibration source.
- **Vibration Path.** Soil type, rock layers, soil layering, depth to water table, and frost depth.
- **Vibration Receiver.** Foundation type, building construction, and acoustical absorption.

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground versus at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration

problems at a great distance from the source. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

Effects of Groundborne Vibration

Human response to ground vibration has been correlated best with the vibration velocity level. The vibration velocity level is expressed on the decibel scale. The abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams, and foot traffic.

Table 3.11-5 identifies common sources of vibration, the associated human reaction, and the potential for structural damage. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. Railroad trains, agricultural operations, and construction activities within the St. Helena Planning Area are potential sources of ground vibration.

Table 3.11-5: Typical Levels of Groundborne Vibration

Human/Structural Response	*Velocity Level, in Vibration Decibels (VdB)*	*Typical Events (50-Foot Setback)*
Threshold, minor cosmetic damage	100	Blasting, pile driving, vibratory compaction equipment Heavy tracked vehicles (Bulldozers, cranes, drill rigs)
Difficulty with tasks such as reading a video or computer screen	90	Commuter rail, upper range
Residential annoyance, infrequent events	80	Rapid transit, upper range Commuter rail, typical bus or truck over bump or on rough roads
Residential annoyance, occasional events	70	Rapid transit, typical
Residential annoyance, frequent events	60	Buses, trucks and heavy street traffic
Approximate human threshold of perception to vibration Lower limit for equipment ultra-sensitive to vibration	50	Background vibration in residential settings in the absence of activity

Source: Transit Noise and Vibration Impact Assessment, U.S. Department of Transportation Federal Transit Administration, May 2006

Table 3.11-6 describes the human response to different levels of ground-borne noise and vibration. The first column is the vibration velocity level, and the next two columns are for the corresponding noise level assuming that the vibration spectrum peaks at 30 Hz or 60 Hz (FTA, 2006). The annoyance levels shown in Table 3.11-6 should be interpreted with care since vibrations may be found to be annoying at much lower levels than those shown, depending on the level of activity or inactivity. Elderly, retired, or others staying mostly at home, people reading or studying in a quiet environment, and people involved in vibration-sensitive activities are examples of people potentially annoyed by vibration at very low levels. To these and other sensitive individuals, even vibrations at the threshold of perception can be annoying.

Table 3.11-6: Human Response to Different Levels of Groundborne Noise and Vibration

Vibration Velocity Level	*Noise Level*		*Human Response*
	Low Freq[1]	*Mid Freq*[2]	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound usually inaudible, mid-frequency sound excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise acceptable for sleeping areas, midfrequency noise annoying in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration acceptable only if there are an infrequent number of events per day. Low-frequency noise annoying for sleeping areas, mid-frequency noise annoying even for infrequent events with institutional land uses such as schools and churches.
Notes: 1. Approximate noise level when vibration spectrum peak is near 30 Hz. 2. Approximate noise level when vibration spectrum peak is near 60 Hz.			

Source: FTA, 2006

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise, causing induced vibration in exterior doors and windows.

Sources of Vibration

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with groundborne vibration and noise from these sources are usually localized to within about 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet (Federal Transit Authority, 2006). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely

perceptible. Potential sources of vibration in the Planning Area include the Napa Valley Wine Train and heavy vehicle traffic on SR-29.

REGULATORY SETTING

Federal Regulations

Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development's environmental criteria and standards are presented in 24 Code of Federal Regulations (CFR) Part 51. New construction proposed in high noise areas (exceeding 65 dBA DNL) must incorporate noise attenuation features to maintain acceptable interior noise levels. A goal of 45 dBA DNL is set forth for interior noise levels and attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction, any building will provide sufficient attenuation to achieve an interior level of 45 dBA DNL or less if the exterior level is 65 dBA DNL or less. Approvals in a "normally unacceptable noise zone" (exceeding 65 dB, but not exceeding 75 dB) require a minimum of 5 dB of additional noise attenuation for buildings having noise sensitive uses if the DNL is greater than 65 dB, but does not exceed 70 dB, or a minimum of 10 dB of additional noise attenuation if the day-night average is greater than 70 dB, but does not exceed 75 dB.

Federal Highway Administration

An assessment of noise and consideration of noise abatement per Title 23 of the CFR, Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," is required for proposed federal or federal-aid highway construction projects on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. The FHWA considers noise abatement for sensitive receivers, such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, places of worship, libraries, and hospitals when "worst-hour" noise levels approach or exceed 67 dBA L_{eq}. The California Department of Transportation (Caltrans) has further defined "approach" as meaning to be within 1 dB of the Noise Abatement Criteria (NAC).

Federal Transit Administration

The Federal Transit Administration (FTA) transit and train vibration impact criteria for residences and buildings where people normally sleep (e.g., nearby residences) are 72 VdB for frequent events (more than 70 events of the same source per day), 75 VdB for occasional events (30 to 70 vibration events of the same source per day), and 80 VdB for infrequent events (fewer than 30 vibration events of the same source per day).

Federal Railroad Noise Emissions Compliance Regulation

The Federal Railroad Administration's Office of Safety is responsible for enforcing the Railroad Noise Emissions Compliance Regulation that sets maximum sound levels from railroad equipment and for regulating locomotive horns.

State Regulations

California Noise Control Act of 1973

The California Noise Control Act of 1973 is in Sections 46000 through 46080 of the California Health and Safety Code. The act finds that excessive noise can result in physiological, psychological, and economic damage. This act states that it is the policy of the State of California to provide an environment for all Californians free from noise that jeopardizes their health or welfare and they are entitled to a peaceful and quite environment without the intrusion of noise that may be hazardous to their health or welfare.

California Health and Safety Code Section 118825–118830

This law addresses noise pollution regarding supersonic transport aircraft and prohibits the service of private or commercial aircraft landings or take offs within the state that do not comply with federal certification limits for subsonic jet transport aircraft.

State of California Building Code

The State of California's noise insulation standards are codified in the California Code of Regulations (CCR), Title 24. These noise standards are applied to new construction in California for the purpose of ensuring that the level of exterior noise transmitted to and received within the interior living spaces of buildings is compatible with their comfortable use. For new residential dwellings, hotels, motels, dormitories, and school classrooms, the acceptable interior noise limit for habitable rooms in new construction is 45 dBA CNEL or DNL. Title 24 requires acoustical studies for residential development in areas exposed to more than 60 dBA CNEL to demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. Where exterior noise levels are projected to exceed 60 dBA CNEL or DNL at the facade of a building, a report must be submitted with the building plans that describe the noise control measures that have been incorporated into the design of the project to meet the 45-dBA noise limit.

California Code of Regulations Title 21- Airport Noise Standards

Noise standards governing the operation of aircraft and aircraft engines for all airports are described in CCR Title 21, Division of Aeronautics, Subchapter 6 "Noise Standards." The regulations are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the Department of Aeronautics to work cooperatively to diminish noise. The regulations are achieved by controlling and reducing noise that affects communities in the vicinity of airports.

State of California Land Use Compatibility Criteria

The State of California adopts suggested land use noise compatibility levels as part of its General Plan Update Guidelines. These suggested guidelines are an integral tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated into the design. By comparison, a

normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

Local Regulations

City of St. Helena Noise Ordinance

Unnecessary noise is defined in Chapter 8.24 of the St. Helena Municipal Code. The Municipal Code does not quantitatively regulate noise levels, but states that "… unnecessary noise which can be heard outside of any building by attaching any noise-producing attachment to any vehicle; or blowing or ringing any horn, whistle or bell; by operating a loudspeaker, public address system or sound amplification system; or by making any other loud or unusual noise which disturbs the peace of any other persons…" would violate the ordinance unless permitted by the chief of police.

Similarly, noise generated by commercial activities between the hours of 10:00 PM and 7:00 AM that can be heard at the property line of any parcel is prohibited, unless permitted by the Chief of Police (through the issuance of Noise Permit). Construction activities are limited to the hours between 8:00 AM and 5:00 PM Monday through Saturday. Construction is not allowed on Sundays and holidays (federal and local) if noise can be heard at the property line of any parcel of real property within the city limits (except in very limited occurrences for self-help affordable housing projects as identified in St. Helena Municipal Code Chapter 8.24). Delivery of materials/equipment and cleaning and servicing of machines/equipment are limited to between 7:00 AM and 6:00 PM. Noise generated by contracted landscape maintenance activities is limited to the hours between 8:00 AM and 5:00 PM Monday through Saturday and prohibited on Sundays and holidays (federal and local).

Napa County General Plan Community Character Chapter

The Napa County General Plan applies to the unincorporated portion of the Planning Area. The State-required noise element of the Napa County General Plan is located in the Community Character chapter of that document. Noise policies include standards for maximum exterior and interior noise levels, and compatibility guidelines for residential, commercial, and industrial land uses. Policies also address noise mitigation for new development and construction activities and establish that noises associated with agriculture are considered acceptable and not considered to be undesirable provided that normal and reasonable measures are taken to avoid significantly impacting adjacent uses.

Napa County Noise Control Regulations

Napa County Municipal Code Chapter 8.16 regulates noise and vibration in the unincorporated portion of the Planning Area. Interior noise limits are established for residential uses and are shown in Table 3.11-7. Exterior noise limits are shown in Table 3.11-8. Noise limits for construction activities are shown in Table 3.11-9.

Table 3.11-7: Napa County Noise Control Regulations Residential Interior Noise Limits

Time Interval	*Allowable Interior Noise Level (dBA)*
10:00 p.m. – 7:00 a.m.	55
7:00 a.m. – 10:00 p.m.	60

Source: Napa County Code Section 8.16.060.

Table 3.11-8: Napa County Noise Control Regulations Exterior Noise Limits (Levels not to be exceeded more than 30 minutes in any hour)

Receiving Land Use Category	*Time Period*	*Noise Level (dBA) Noise Zone Classification*[1]		
		Rural	*Suburban*	*Urban*
Residential	10:00 p.m. – 7:00 a.m.	45	45	50
Single and double	7:00 a.m. – 10:00 p.m.	50	55	60
Residential multiple and country	10:00 p.m. – 7:00 a.m.	45	50	55
	7:00 a.m. – 10:00 p.m.	50	55	60
Commercial	10:00 p.m. – 7:00 a.m.	–	60	–
	7:00 a.m. – 10:00 p.m.	–	65	–
Industrial, including wineries	Anytime	75	–	–

Note:

1. The classification of different areas of the county in terms of environmental noise zones shall be determined by the Noise Control Officer, based upon assessment of county noise survey data. Industrial noise limits are intended primarily for use at the boundary of industrial zones rather than for noise reduction within the zone.

Source: Napa County Code Section 8.16.070.

Table 3.11-9: Napa County Noise Control Regulations Noise Limits for Construction Activities

Time Period	*Residential*	*Commercial*	*Industrial*
7:00 a.m. – 10:00 p.m.	75 dBA	80 dBA	85 dBA
10:00 p.m. – 7:00 a.m.	60 dBA	65 dBA	70 dBA

Source: Napa County Code Section 8.16.080.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Expose persons to or generate noise levels in excess of standards established in the proposed General Plan Noise Element, or applicable standards of other agencies;**

Criterion 2: **Expose persons to or generate excessive groundborne vibration or groundborne noise levels;**

Criterion 3: **Result in a substantial permanent increase in ambient noise levels in the vicinity of the Planning Area above levels existing without the project; or**

Criterion 4: **Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Criterion 5: **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Planning Area to excessive noise levels; or**

Criterion 6: **For a project within the vicinity of a private airstrip, expose people residing or working in the Planning Area to excessive noise levels**

METHODOLOGY AND ASSUMPTIONS

Construction Noise

Potential short-term construction noise impacts were evaluated using the FHWA Roadway Construction Noise Model (FHWA, 2006) and reference noise levels for each piece of construction equipment from the same model. Construction noise levels from a group of specific construction equipment that would operate together during the worst construction phase were calculated at a distance of 50 feet.

Potential short-term construction vibration impacts were evaluated using FTA methodology for construction vibration from FTA Transit Noise and Vibration Impact Assessment Manual (FTA, 2006). The distance within the construction vibration damage criteria was determined based on reference vibration levels for specific construction equipment.

Traffic Noise

The FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions. Future traffic volumes were those analyzed for Section 3.13: Transportation. This model requires various parameters, including traffic volumes, vehicle mix,

vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values.

The Proposed Plan's noise standards are at least as stringent as those found in the current St. Helena General Plan, and, if adopted, would replace existing General Plan noise standards and require updates to the City's Noise Ordinance. Thus, the Proposed Plan's noise standards are used to evaluate potential noise impacts from traffic sources in the City of St. Helena. The Napa County County General Plan and Noise Control Regulations are used to evaluate potential noise impacts in the unincorporated county.

Stationary Noise

Potential long-term (operational) noise impacts from stationary non-transportation sources are regulated by the City's Noise Ordinance and Napa County's Noise Control Regulations. The Proposed Plan's noise standards are at least as stringent as those found in the current St. Helena General Plan, and, if adopted, would replace existing General Plan noise standards and require updates to the City's Noise Ordinance. Thus, the Proposed Plan's noise standards are used to evaluate potential noise impacts from stationary sources in the City of St. Helena. The Napa County Noise Control Regulations are used to evaluate potential noise impacts in the unincorporated county.

Study Areas

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to Noise in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to Noise in the study areas except as discussed below. Cumulative impacts related to Noise are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Circulation

- ***CR4.1*** Ensure adequate maintenance of transportation facilities such as streets, sidewalks and multi-use paths. Emphasize safety considerations, impacts on non-automobile modes of travel and overall impact on long-term resource needs as maintenance priorities.
- ***CR6.2*** Require concurrent infrastructure development for any new development projects that have impacts on the circulation system, including streets, paths, trails, sidewalks and public transit.

Public Health, Safety, and Noise

- ***PS2.1*** Preserve the current low levels of noise in St. Helena to maintain the City's rural atmosphere.

- ***PS2.2*** Maintain a citywide environment that balances various City objectives while minimizing the impact of highway, railroad and industrial noise. The City should manage both indoor and outdoor noise levels to protect health and safety. A combination of noise standards and existing noise levels should be used to determine impacts and mitigation measures.
- ***PS2.3*** Minimize potential noise impact conflicts between land uses by regulating incompatible land uses. Encourage noise-generating uses to reduce their impacts while promoting land use patterns that avoid conflicts. Employ compatibility guidelines, interior noise level criteria, the City noise standards and noise contour maps to determine the compatibility of land uses.
- ***PS2.4*** Require a reduction and/or control of the use of machinery. mechanical systems and other noise-making equipment and sources in and near residential areas where noise impacts would be considered intrusive to adjacent residential property, unless consistent with the right- to-farm.
- ***PS2.B*** Enforce the Land Use Compatibility Standards presented in the State of California's General Plan guidelines when siting new uses. These standards identify the acceptability of a project based on levels of noise exposure.
- ***PS2.C*** Adopt and enforce Title 24 Standards for all types of new residential construction including single family dwellings, duplexes, apartments, and dormitories.
  - An interior maximum noise level of LAdn-45 dBA in all habitable rooms for all dwelling units;
  - A maximum allowable interior noise level for bedrooms of an hourly LAeq-35 dBA;
  - A maximum noise level of LAdn-60 dBA for residential exterior activity areas;
  - If interior noise standards are met by requiring windows to be closed, cooling and outside air exchange must also be provided in the building's design.
- ***PS2.D*** Require an acoustical study, prepared by a qualified acoustical consultant for:
  - All proposed projects that are likely to be exposed to noise levels greater than the standards;
  - All proposed projects that would generate noise where impacts on other uses would be greater than the standards;
  - Any project exposed to outdoor noise at or above a day-night average sound level (Ldn) of 60 or for any noise source that could create such outdoor noise levels for adjacent uses; and
  - Any project exposed to or that creates noise which exceeds the adopted City standards.
- ***PS2.E*** Require new developments to implement noise mitigation measures when built in close proximity to noise sources, such as State Route 29 and the railroad tracks. These developments should consider the exterior and interior noise environment.
- ***PS2.F*** Require construction operations to use noise suppression devices and techniques and limit noisy construction activities that can be heard at the property line to the least noise-sensitive times, as per the noise ordinance.

- ***PS2.G*** Include appropriate noise attenuation techniques in the design of new streets. Such techniques could include the use of site planning, building orientation, buffer distances and the use of correctly-engineered acoustical barriers and berms where necessary. Adopt the noise standard for intrusive noise at residents in Table 9.4.
- ***PS2.H*** Amend the City's noise ordinance to regulate intrusive noise sources, such as the use of machinery and equipment, leaf blowers, and other landscaping and property maintenance devices, animals, vehicles and motorcycles, and idling buses or trucks in or near uses sensitive to noise.

IMPACTS

Impact 3.11-1 Implementation of the Proposed Plan would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies. (*Less than Significant*)

Implementation of the Proposed Plan may result in both temporary and permanent increases in noise levels, but the increases associated with construction, traffic, rail, and stationary noise sources would be less than significant.

Construction Noise

Future development associated with the implementation of the Proposed Plan would generate noise levels from construction activities. Two types of short-term noise impacts could occur during construction. First, construction crew commutes and the transport of construction equipment and materials to construction sites would incrementally increase noise levels on access roads leading to the sites. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to 55 dBA Lmax), the effect on longer term (hourly or daily) ambient noise levels would be small. Therefore, short-term construction-related impacts associated with worker commute and equipment transport would be less than significant.

The second type of short-term noise impact is related to noise generated during grading and building erection on a project site. Construction is completed in discrete steps, each of which has its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site, and therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 3.11-10 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Table 3.11-10: Typical Construction Equipment Noise Levels

Equipment Description	*Spec 721.560[1] Lmax at 50 ft.*	*Actual Measured[2] Lmax at 50 ft.*
Backhoes	80	78
Compactor (ground)	80	83
Cranes	85	81
Dozers	85	82
Dump Truck	84	76
Excavators	85	81
Flat Bed Trucks	84	74
Front-End Loaders	80	79
Graders	85	N/A[3]
Jackhammer	85	89
Pickup Truck	55	75
Pneumatic Tools	85	85
Pumps	77	81
Rock Drill	85	81
Roller	85	80
Scrapers	85	84
Tractors	84	N/A
Vibratory Pile Driver	95	101

Notes:

1. Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
2. The maximum noise level was developed based on the average noise level measured for each piece of equipment during the CA/T program in Boston, Massachusetts.
3. Since the maximum noise level based on the average noise level measured for this piece of equipment was not available, the maximum noise level developed based on Spec 721.560 was used.

Lmax = maximum instantaneous sound level

N/A = not applicable

Noise levels reported in this table are rounded to the nearest whole number.

Source: Federal Highway Administration Roadway Construction Noise Model, 2006.

Typical noise levels can range up to 80 to 90 dBA Lmax at 50 feet during the noisiest construction phases. For example, the site preparation phase, which includes excavation and grading of the site, can generate high noise levels due to the use of equipment such as excavating machinery (dozers, excavators, and front-end loaders) and earthmoving and compacting equipment (compactors, scrapers, and graders). Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

In general, construction projects under implementation of the Proposed Plan could require the use of equipment such as scrapers, bulldozers, and water trucks/pickup trucks. As seen in Table 3.11-10, the maximum noise level generated by each scraper can be assumed to be approximately 85 dBA Lmax at 50 feet from the scraper in operation. Each bulldozer would generate approximately 85 dBA Lmax at 50 feet. The maximum noise level generated by water trucks/pickup trucks is approximately 55 dBA Lmax at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level during this phase of construction would likely be between 80 and 90 dBA Lmax (at a distance of 50 feet from an active construction area).

The exact location of projects and extent of construction activities that would occur under the Proposed Plan are not known at this time. Within the city, construction noise is regulated under the General Plan and the Noise Ordinance of the Municipal Code. If approved, the Proposed Plan would replace the existing General Plan, including the noise standards and policies, and would amend the Noise Ordinance to be consistent with the Proposed Plan's goals (Policy PS2.H). Additionally, Proposed Plan policy PS2.F would require construction operations to use noise suppression devices and techniques and limit noisy construction activities that can be heard at the property line to the least noise-sensitive times in accordance with the Noise Ordinance. Compliance with the City's Noise Ordinance would be required for any future construction in the city. Thus, no conflicts with the General Plan or Noise Ordinance standards would be anticipated.

The Proposed Plan does not include any land use designations or policies for the study areas, which are outside of the City of St. Helena's jurisdiction. Compliance with the Napa County Noise Control Regulations and Napa County General Plan would be required for any future construction in the unincorporated county. Therefore, no noise impacts in exceedance of County standards would be expected to occur.

Traffic Noise

Implementation of the Proposed Plan would allow for an increase in population and traffic in the Planning Area, which would increase traffic noise levels along existing and future roadways. Table 3.11-11 compares projected traffic noise levels for the Proposed Plan with existing noise levels. The projected noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Figure 3.11-3: Projected Noise Contours (2040) shows projected noise level contours along local roadways and freeways within the Planning Area with the Proposed Plan.

Table 3.11-11: Existing and Future Traffic Noise Levels

#	*Roadway (Segment)*	*Existing Noise Level at 50'of Centerline (DNL in dB)*	*Future Noise Level at 50' (DNL in dB)*	*Projected Increase (dB)*	*In 2040: Distance from Centerline to DNL 70 dB*	*In 2040: Distance from Centerline to DNL 65 dB*	*In 2040: Distance from Centerline to DNL 60 dB*
1	Main Street (North of Pratt Avenue)	72	72	<1	70	150	320
2	Main Street (Pratt Avenue to Elmhurst Avenue)	70	70	<1	50	110	230
3	Main Street (Elmhurst Avenue to Madrona Ave./Fulton Ln.)	70	70	<1	50	110	230
4	Main Street (Madrona/Fulton to Adams Street)	66	67	1	<50	60	140
5	Main Street (Adams Street to Hunt Avenue)	66	66	<1	<50	60	130
6	Main Street (Hunt Avenue to Pope St./Mitchell Dr.)	66	67	1	<50	60	140
7	Main Street (South of Pope Street)	70	70	<1	50	110	230
8	Main Street (North of Mills Lane)	73	73	<1	80	180	380
9	Main Street (South of Grayson Avenue)	73	73	<1	80	170	360
10	Main Street (North of Sulphur Springs Avenue)	72	73	1	80	160	350
11	Main Street (South of Sulphur Springs Avenue)	73	73	<1	80	180	380
12	Silverado Trail	71	71	<1	60	130	290

Table 3.11-11: Existing and Future Traffic Noise Levels

#	*Roadway (Segment)*	*Existing Noise Level at 50'of Centerline (DNL in dB)*	*Future Noise Level at 50' (DNL in dB)*	*Projected Increase (dB)*	*In 2040: Distance from Centerline to DNL 70 dB*	*In 2040: Distance from Centerline to DNL 65 dB*	*In 2040: Distance from Centerline to DNL 60 dB*
	(North of Howell Mountain Road)						
13	Silverado Trail (South of Howell Mountain Road)	71	71	<1	60	140	290
14	Starr Avenue (Hunt Avenue to Pope Street)	60	61	1	<50	<50	60
15	Railroad Avenue (Fulton Lane to Adams Street)	63	63	<1	<50	<50	90
16	Railroad Avenue (Adams Street to Hunt Avenue)	64	64	<1	<50	<50	90
17	Oak Avenue (North of Mitchell Drive)	61	62	1	<50	<50	70
18	Spring Mountain Road (North of Elmhurst Avenue)	59	59	<1	<50	<50	50
19	Spring Mountain Road (Elmhurst Avenue to Hillview Place)	59	60	1	<50	<50	50
20	Spring Mountain Road (Hillview Place to Madrona Avenue)	58	60	2	<50	<50	50
21	Hudson Avenue (Madrona Avenue to Spring Street)	59	60	1	<50	<50	50
22	Valley View Street (Spring Street to Grayson Avenue)	63	63	<1	<50	<50	80
23	Valley View Street	60	61	1	<50	<50	60

Table 3.11-11: Existing and Future Traffic Noise Levels

#	*Roadway (Segment)*	*Existing Noise Level at 50'of Centerline (DNL in dB)*	*Future Noise Level at 50' (DNL in dB)*	*Projected Increase (dB)*	*In 2040: Distance from Centerline to DNL 70 dB*	*In 2040: Distance from Centerline to DNL 65 dB*	*In 2040: Distance from Centerline to DNL 60 dB*
	(Grayson Avenue to Sulpher Spring Avenue)						
24	Pratt Avenue (East of Main Street)	59	61	2	<50	<50	60
25	Elmhurst Avenue (Spring Mountain Road to Main Street)	60	61	1	<50	<50	60
26	Madrona Avenue (East of Hudson Avenue)	59	61	2	<50	<50	60
27	Madrona Avenue (West of Spring Mountain Road)	63	64	1	<50	<50	90
28	Madrona Avenue (Spring Mountain Road to Main Street)	63	64	1	<50	<50	90
29	Fulton Lane (Main Street to Railroad Avenue)	62	64	2	<50	<50	90
30	Adams Street (West of Main Street)	64	64	<1	<50	<50	90
31	Adams Street (Main Street to Railroad Avenue)	64	64	<1	<50	50	100
32	Adams Street (Railroad Avenue to Library Lane)	62	63	1	<50	<50	70
33	Hunt Avenue (Main Street to Railroad Avenue)	60	61	1	<50	<50	60
34	Hunt Avenue	60	61	1	<50	<50	60

Table 3.11-11: Existing and Future Traffic Noise Levels

#	*Roadway (Segment)*	*Existing Noise Level at 50'of Centerline (DNL in dB)*	*Future Noise Level at 50' (DNL in dB)*	*Projected Increase (dB)*	*In 2040: Distance from Centerline to DNL 70 dB*	*In 2040: Distance from Centerline to DNL 65 dB*	*In 2040: Distance from Centerline to DNL 60 dB*
	(Railroad Avenue to Starr Avenue)						
35	Mitchell Drive (Oak Avenue to Main Street)	62	62	<1	<50	<50	70
36	Pope Street (Main Street to Starr Avenue)	65	66	1	<50	60	120
37	Pope Street (Starr Avenue to College Ave./Paseo Grande Dr.)	66	67	1	<50	60	140
38	Pope Street College Ave./Paseo (Grande Dr. to Silverado Trail)	65	66	1	<50	60	120
39	Spring Street (West of Valley View Street)	59	60	1	<50	<50	50
40	Spring Street (East of Valley View Street)	65	65	<1	<50	50	110
41	Grayson Avenue (Crave Ave./Valley View St. to Main Street)	64	64	<1	<50	50	100
42	Sulphur Spring Avenue (Crane Avenue to Main Street)	62	63	1	<50	<50	80
43	Railway (Wine Train)	64	64	<1	<50	50	100

Table 3.11-11: Existing and Future Traffic Noise Levels

#	Roadway (Segment)	Existing Noise Level at 50'of Centerline (DNL in dB)	Future Noise Level at 50' (DNL in dB)	Projected Increase (dB)	In 2040: Distance from Centerline to DNL 70 dB	In 2040: Distance from Centerline to DNL 65 dB	In 2040: Distance from Centerline to DNL 60 dB

Definition:

DNL (Day-Night Average Sound Level) – A descriptor for a 24-hour A-weighted average noise level. DNL accounts for the increased acoustical sensitivity of people to noise during the nighttime hours. DNL penalizes sound levels by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the DNL and CNEL are usually interchangeable. DNL is sometimes written as Ldn.

Comments/Assumptions

1) Traffic volumes are per Fehr & Peers data received 1 August 2018.

2) Truck % assumed to be 2% for all roadways.

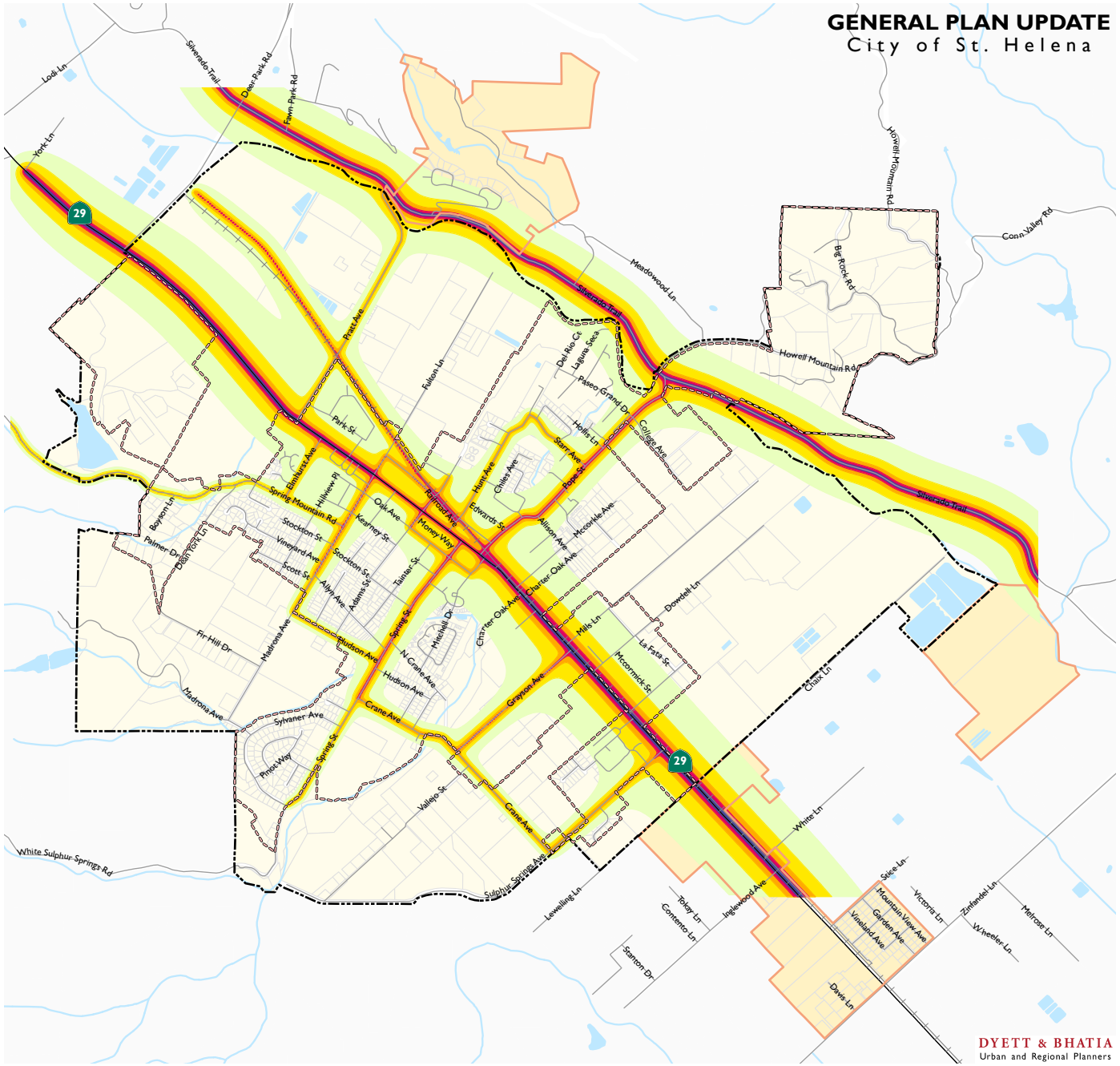
3) Speeds are estimated based on roadway type.

Source: Charles Salter Associates, 2018

Figure 3.11-3

Projected Noise Contours (2040)

- DNL 55 - 60 dB
- DNL 60 - 65 dB
- DNL 65 - 70 dB
- DNL 70 - 75 dB
- DNL 75 - 80 dB
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: Charles M. Salter Associates, Inc, 2018; City of St. Helena, 2018; Napa County,2018; Dyett & Bhatia, 2018

According to the noise exposure guidelines in the Proposed Plan, the most stringent limit on exterior noise for any land use category is 60 dBA CNEL for residential and other sensitive land uses. The threshold for office buildings is 75 dBA CNEL, and the threshold for playgrounds and parks is 70 dBA CNEL. These standards are as stringent as those in the city's current General Plan. With approval of the Proposed Plan, the environmental impacts from future traffic on existing uses and on new development itself would be assessed on a case-by-case basis using project-level information and the proposed community noise exposure standards for the most representative assessment of individual development impacts.

Although not all roadway segments are located within 50 feet of a noise-sensitive land use, a reference distance of 50 feet was utilized in the noise modeling to conservatively assess potential noise impacts. As discussed in the Physical Setting section above, audible increases in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior environments. Therefore, this analysis considers an increase in noise greater than 3 dBA as substantial. Modeling indicates that there are no roadway segments that would experience increases in noise levels greater than 3 dBA CNEL in 2040 with the Proposed Plan over existing conditions.

In addition, Proposed Plan policies and implementing actions such as PS2.2, PS2.B, PS2.D, PS2.E, PS2.G, and PS2.H directly address traffic noise impacts, calling for enforcement of noise compatibility standards, noise attenuation measures for new roadways, and noise mitigation for new development to attain noise standards. In the city, compliance with these policies would ensure that implementation of the Proposed Plan would not expose persons to or generate noise levels in excess of standards and impacts would be less than significant.

While the Proposed Plan does not include policies for the unincorporated study areas, traffic volume increases on roadways in and leading out of the city (Silverado Trail, SR-29) could cause noise increases in Study Areas 1 and 3. These would similarly be anticipated to be increases of less than 3 dBA CNEL. Given that the increase would not likely be perceptible

Rail Noise

The Proposed Plan includes a variety of land use designations along the railway, including agricultural, residential, mixed-use, and commercial. For all future developments within the Planning Area that fall within the required noise screening distances as specified in the FTA Noise and Vibration Manual, a detailed noise analysis would be required. The screening distance for commuter rail and freight trains are 750 feet with no obstruction between the rail line and receptor and 375 feet with intervening buildings. Additionally, new development under the Proposed Plan would be subject to proposed policies and implementing actions PS2.3, PS2.B, PS2.D, PS2.E, and PS2.C, which seek to enforce noise compatibility standards, require acoustical studies and noise mitigation measures for new development as needed, particularly along the rail line. Given these proposed policies, and since the Proposed Plan does not propose additional rail lines or rail service, impacts due to rail noise would be less than significant.

Stationary Noise

New development associated with implementation of the Proposed Plan could expose existing and/or new sensitive uses to stationary noise sources, such as industrial and/or commercial uses. The development of new commercial and industrial uses pursuant to the Proposed Plan may introduce new noise sources into the Planning Area. Industrial processing equipment and conducting outdoor industrial activities could also generate increased noise levels. New development would be subject to Proposed Plan noise compatibility standards, policies, and implementing actions such as PS2.4 to reduce or control the use of noise-making equipment, PS2.H to regulate intrusive noise sources, PS2.3 to minimize noise conflicts, and PS2.D to require acoustic studies for certain noise-generating uses. New development of sensitive receptors near existing stationary noise sources would be required to comply with Proposed Plan interior and exterior noise standards and compatibility standards. With adherence to these policies that woud reduce the impacts from stationary noise sources on sensitive land uses, the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.11-2 Implementation of the Proposed Plan would not expose people to or generate excessive groundborne vibration or groundborne noise levels. (*Less than Significant with Mitigation*)

Implementation of the Proposed Plan may result in groundborne vibration. Increases associated with traffic and rail would be less than significant; increases associated with construction would be less than significant with mitigation, as discussed below.

Construction Vibration

Future development under the Proposed Plan could generate groundborne noise and vibration near construction sites and could expose people to groundborne vibration and noise. A significant impact would occur if such projects generate groundborne vibration or noise at levels that could result in damage to structures or prolonged exposure to continuous audible or feelable vibrations that could be considered annoying to people in buildings.

Heavy duty equipment associated with some construction activities can produce vibration that may be felt by adjacent uses. The main concern associated with this type of vibration is annoyance. In extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. Activities such as pile-driving, blasting, and drilling have the highest potential for creating groundborne vibration impacts. The potential construction-related vibration impacts depend on the proximity of construction activities to sensitive receptors, the presence of intervening barriers, the number and types of construction equipment, and duration of construction equipment use. Perceptible groundborne vibration is generally limited to areas within a few hundred feet of construction activities.

It is not known if and where pile driving or other activities that generate high levels of vibration, such as drilling, may occur. However, it is possible that excavation or the use of a large bulldozer, which also generates vibration, could occur for future development projects.

Table 3.11-12 summarizes typical vibration levels generated by construction equipment (Federal Transit Administration, 2006) at the reference distance of 25 feet and other distances.

Table 3.11-12: Vibration Source Levels for Construction Equipment

Equipment	*PPV at 25 Feet*	*PPV at 50 Feet*	*PPV at 75 Feet*	*PPV at 100 Feet*	*PPV at 175 Feet*
Pile driver (impact)[a]	0.65	0.230	0.125	0.081	0.035
Pile driver (sonic/vibratory)[a]	0.65	0.230	0.125	0.081	0.035
Hoe ram or large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0041
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0019
Small bulldozer	0.003	0.0011	0.0006	0.0004	0.0002

Note:

a. The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2013b) is used as the source for vibration from a vibratory pile driver, in order to ensure consistency with the BART to Livermore Extension Project Draft EIR (San Francisco Bay Area Rapid Transit District, 2017).

Source: Federal Transit Administration, 2006.

Tables 3.11-13 and 3.11-14 summarize guidelines developed by the California Department of Transportation (Caltrans) for damage and annoyance potential from transient and continuous vibration that is usually associated with construction activity. Equipment or activities typical of continuous vibration include: excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include: impact pile drivers, blasting, drop balls, "pogo stick" compactors, and crack-and-seat equipment (California Department of Transportation, 2013b).

Table 3.11-13: Vibration Damage Potential Threshold Criteria Guidelines

	Maximum PPV (inches/second)	
Structure and Condition	*Transient Sources*	*Continuous/Frequent Intermittent Sources*
Extremely fragile historic buildings, ruins, ancient monuments	0.1	0.1
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.3
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity.

Source: California Department of Transportation 2013b.

Table 3.11-14: Vibration Annoyance Potential Criteria Guidelines

	Maximum PPV (inches/second)	
Human Response	*Transient Sources*	*Continuous/Frequent Intermittent Sources*
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity.

Source: California Department of Transportation 2013b.

Future and existing development adjacent to construction sites could be exposed to excessive groundborne vibration temporarily (i.e. vibration that is distinctly perceptible). Table 3.11-8 shows that a pile driver, a hoe ram or large bull dozer (which generates vibration levels similar to an excavator), and loaded trucks all have the potential to generate vibration levels greater than the distinctly perceptible level of 0.04 PPV in/sec at a distance of 25 feet. At distances greater than 50 feet, only a pile driver (impact or vibratory/sonic) would be expected to generate distinctly perceptible vibration. An impact pile driver could create distinctly perceptible vibration (0.04 PPV

in/sec) at distances of up to approximately 300 feet, and a sonic/vibratory pile driver could generate distinctly perceptible vibration at distances of up to 175 feet.

As construction equipment operating within 25 feet of sensitive land uses could generate distinctly perceptible vibration, non-pile driving construction activities occurring within 25 feet of sensitive uses could result in significant vibration impacts. In addition, pile driving occurring within approximately 175 feet or 300 feet of sensitive uses for vibratory/sonic pile drivers and impact pile drivers, respectively, could also result in significant vibration impacts. As the specific future projects to be developed under the Proposed Plan are not known at this time, and as the level of construction activity that would occur at various locations for future projects is also not known, it is possible the future construction activities could result in significant vibration impacts in portions of the Planning Area near historic structures and sensitive receptors such as schools and residences.

The City's Noise Ordinance would help reduce construction vibration effects at future and existing sensitive land uses by limiting the times at which construction could take place to certain time periods when it would not be a major disturbance to neighbors, including sensitive receptors. However, neither the Noise Ordinance nor the Proposed Plan provide a framework for determining specific construction vibration mitigation measures to ensure that potential vibration impacts are minimized. Therefore, the impact would be significant, but could be reduced to less than significant with Mitigation Measure NO-1, described below.

Significance before Mitigation: Significant.

Traffic Vibration

There is an anticipated increase in traffic in the Planning Area associated with both the increase in density and intensity allowed under the Proposed Plan and with regional increases in traffic generally (see Section 3.13: Transportation and Traffic). Vibration resulting from vehicle traffic is generated primarily by heavy truck passage over discontinuities in the pavement (such as potholes, bumps, and expansion joints) (Caltrans, 2013). Policies in the Proposed Plan would serve to limit the extent of such discontinuities in the city future by supporting proper maintenance of the roads in the Planning Area (CR4.1 and CR4.2). Thus, regardless of the vehicle mix in the future, the impact from traffic-related vibration is anticipated to be less than significant within city limits.

The Proposed Plan does not include policies for the unincorporated study areas as the City does not have jurisdiction in those areas. While the Proposed Plan would not affect pavement conditions in the study areas, it could influence the vehicle mix traveling along SR-29 through Study Area 3, as Proposed Plan policies seek to expand regional public transit, and future development could result in an increase in heavy trucks delivering goods into the Planning Area. Existing development in these areas are generally set back and buffered from the highway, reducing the amount of vibration that can be felt from the roadway. Furthermore, this analysis assumes that Caltrans will continue to maintain SR-29 such that the impact from traffic-related vibration is minimized regardless of vehicle mix. Thus, the impact from traffic-related vibration in the study areas is considered less than significant.

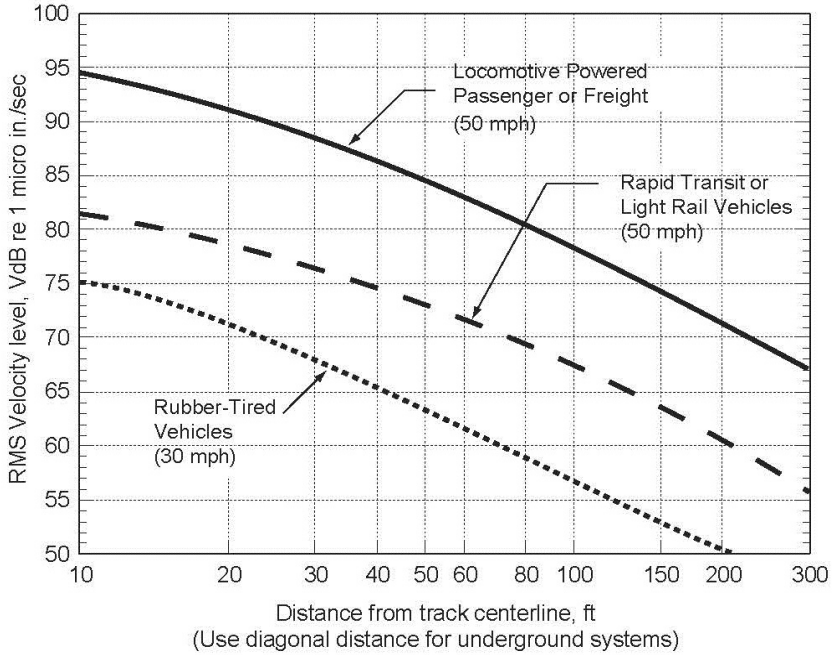
Rail Vibration

The Napa Valley Wine Train is the only source of rail vibration in the Planning Area. The Proposed Plan would not affect operations of the Wine Train; however, it would allow for future development adjacent to the rail corridor in some portions of the city. Typical vibration levels generated from trains are described in Figure 3.11-4: Generalized Ground Surface Vibration Curves, excerpted from the Federal Transit Administration Transit Noise and Vibration Impact Assessment guidance manual (2006). The majority of uses allowed along the rail corridor under the Proposed Plan are non-sensitive uses, including agriculture, commercial, and industrial uses. The area along the railway between Pratt Avenue and Fulton Lane designated as Medium Density Residential by the Proposed Plan is a pre-existing residential neighborhood.

For all future development within the Planning Area that fall within the required noise screening distances as specified in the FTA Noise and Vibration Manual, a detailed noise analysis would be required. The screening distance for commuter rail is 750 feet with no obstruction between the rail line and receptor and 375 feet with intervening buildings. Due to required noise analyses, vibration levels generated from trains would be considered less than significant.

The Proposed Plan does not include policies or land uses for the unincorporated study areas and would thus have no impact regarding exposure to rail vibration in those locations.

Figure 3.11-4: Generalized Ground Surface Vibration Curves



Source: FTA, 2006

Mitigation Measures

NO-1: Where vibration impacts have the potential to cause structural damage or distinctly perceptible human response (reference Tables 3.11-12 to 3.11-14, or more recent sources), require a vibration study, prepared by a qualified vibration consultant. The study should include a site-specific engineering assessment of potential vibration impacts to structures and sensitive receptors from construction activities and specify a mitigation plan to minimize the impacts using all reasonable and feasible means available. The mitigation plan should include a procedure for establishing threshold and limiting vibration values for potentially affected structures, based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations and a commitment to develop a vibration monitoring plan during the engineering phase and to implement a compliance monitoring program during construction.

Significance after Mitigation: Less than Significant with Mitigation. Mitigation Measure NO-1 would provide a framework to determine specific vibration mitigation measures for future projects to ensure that potential vibration impacts are minimized to the extent feasible, as recommended by the FTA (2013).

Impact 3.11-3 The development of the Proposed Plan would result in a substantial permanent increase in ambient noise levels above levels existing without the Proposed Plan. (*Less than Significant*)

Future development under the Proposed Plan may result in permanent increases in ambient noise levels; however, the potential increases associated with traffic, rail, and stationary noise sources would be less than significant, as discussed below.

Traffic Noise

As discussed in the Physical Setting section above, audible increases in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior environments. As shown in Table 3.11-7, projected traffic patterns at buildout of the Proposed Plan is not anticipated to increase noise levels greater than 3dBA CNEL over existing conditions. Additionally, Proposed Plan policies PS2.1 (to preserve the current low levels of noise in St. Helena), PS2.2 (to minimize the impact of highway, railroad, and industrial noise), and implementing actions PS2.D, PS2.E (to require new development o mitigate noise when built in close proximity to sources such as SR-29), PS2.G (including noise attenuation in the design of new streets), and PS2.H (to amend the City's Noise Ordinance to regulate intrusive noise sources such as vehicles in or near uses sensitive to noise) would serve to further reduce any potential impacts in the city.

While not all roadways in the study areas were modeled in the noise analysis, it can be assumed that traffic from the Proposed Plan in those adjacent areas would be consistent with projections for the modeled segments. Furthermore, the study areas would be subject to the Napa County General Plan, which includes policies such as CC-47 and CC-50 to reduce roadway noise and resolve noise conflicts with other jurisdictions. Thus, adherence to Proposed Plan policies and the existing Napa County General Plan would reduce potential impacts to ambient noise from traffic sources to a less than significant level.

Rail Noise

The Proposed Plan would have no effect on railway traffic in the Planning Area. Therefore, implementation of would have no impact on ambient noise from rail.

Stationary Noise

The development of new agricultural, commercial, and industrial uses pursuant to the Proposed Plan may increase noise levels in their vicinity due to the establishment of new stationary noise sources. Equipment and activities related to industrial and agricultural operations could also generate increased noise levels. In the city, new development under the Proposed Plan would be subject to Proposed Plan standards, including Table 9.4 limits for intrusive noise; policies PS2.1, PS2.3 (to encourage noise-generating uses to reduce impacts while avoiding land use conflicts), and PS2.4 (to require reduction and/or control of the use of noise-making equipment and sources in and near residential areas unless consistent with right-to-farm); and implementation actions PS2.D (to require acoustical studies for projects that would generate noise greater than the standards), and PS2.H. The Proposed Plan does not include any policies or land use designations for the study areas therefore would have no direct impacts on ambient noise in those area, although sound may carry from adjacent land uses. There are no proposed land use changes in portions of the city adjacent to the study areas, which are already largely developed with their designated uses. Therefore, policies reducing impacts from development in the city would also ensure that changes in ambient noise in the study areas from any future redevelopment of adjacent land uses would be consistent with the existing character of the Planning Area. Thus, with adherence to Proposed Plan policies, ambient noise impacts in the from stationary sources and associated operations under the Proposed Plan would be less than significant in both the city and the study areas.

Mitigation Measures

None required.

Impact 3.11-4 The development of the Proposed Plan would not result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the Proposed Plan. (*Less than Significant*)

Construction noise generated from development associated with the Proposed Plan would temporarily increase ambient noise levels above existing noise levels without the Proposed Plan. As construction activities would comply with the City's Noise Ordinance and Napa County Noise Regulations, substantial temporary increase in ambient noise levels from construction noise would be considered less than significant.

Mitigation Measures

None required.

Impact 3.11-5 The Proposed Plan would not expose people residing or working in the Planning Area to excessive noise levels related to its location within two miles of a public airport or public use airport. (*No Impact*)

The Planning Area is not located within two miles of a public airport or public use airport. The nearest public use airport is Angwin-Parrett Field, located four miles northeast of the Planning Area. Therefore, there would be no impact regarding the exposure of people excessive noise levels related to the location of the Planning Area within two miles of a public airport or public use airport.

Mitigation Measures

None required.

Impact 3.11-6 The Proposed Plan would not expose people residing or working in the Planning Area to excessive noise levels related to its location in the vicinity of a private airstrip. (*No Impact*)

The nearest private airstrip is the Pope Valley Airport, located seven miles northeast of the Planning Area. While the airstrip does not have noise contours, it can be assumed from the data in Table 3.11-4 that receptors at a distance of farther than 8,000 feet would not be exposed to noise events from takeoffs or landings in excess of 65 dBA. As operations at the airstrip is reported to be 24 per year, they would be unlikely to affect daily average community noise levels in the Planning Area. Therefore, there would be no impact regarding the exposure of people to excessive noise levels related to the Planning Area's vicinity to a private airstrip.

Mitigation Measures

None required.

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3.12 Public Services and Recreation

This section provides an evaluation of potential impacts on public facilities and services as a result of the Proposed Plan, including impacts related to fire, police, and school services, and park and recreation facilities. This section describes existing public services and facilities in the Planning Area, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics in this section.

Environmental Setting

PHYSICAL SETTING

Public Safety Services

Fire and Emergency Medical services

The City of St. Helena Fire Department provides fire protection services within the city limits and certain surrounding unincorporated areas, including the three study areas, pursuant to a mutual aid agreement between the City and the County of Napa. These services include fire suppression, fire prevention, education, emergency medical and rescue services, and response to incidents involving hazardous materials.

Staffing

The Fire Department is based at 1480 Main Street in St. Helena (Figure 3.12-1). A satellite fire station is located at 1025 Dowdell Lane in St. Helena. The Fire Department allocates positions for two full-time staff members and up to 31 part-time staff as listed in Table 3.12-1. Currently 29 firefighters work for the City on a part-time basis and are paid-per-call. The full-time equivalent for these 29 firefighters is 4.75. There are 1.20 FTE firefighter/EMT's who are paid-per-call. The department has a full-time Management Analyst, a part-time paid Fire Chief, as well as a part-time Fire Marshal. As a paid-per-call department, firefighters respond to the station when they receive a page, leaving the station unoccupied throughout the day.

Equipment

Equipment includes two Type 1 engines, one Type 2 engine, one Type 2 rescue vehicle, one Type 6 brush vehicle, one Ford F350 4x4 command vehicle, one Ford 250 utility vehicle, one Type 1 water tender, one Type 1 truck, and one medium-duty complement rescue trailer. (MSR, 2017).

Table 3.12-1: St. Helena Fire Department Staffing Levels by Type & Full-time Equivalent (FTE), 2016

Staff	*Career/Paid*	*Part-time/Paid- on-call*
Fire Chief	0.20	0.00
Firefighter	0.0	4.75
Management Analyst	1.00	0.00
Other: Fire Marshal	0.20	0.00
Total	**1.40**	**4.75**

Sources: St. Helena RFI, 2016a and St. Helena 16/17 Budget, 2016b

Service Calls and Response Times

The Fire Department has set a goal for a maximum response time of eight minutes within the St. Helena city limits. In 2017, the Department responded to approximately 69 percent of all calls in fewer than seven minutes (Sorensen, 2018). Within the Planning Area, the St. Helena Fire Department responds to all emergency calls in Study Areas 2 and 3, but only non-medical emergency calls in Study Area 1. In 2017, the Fire Department received a total of 977 calls (Sorensen, 2018).

The St. Helena Fire Department is part of the Napa County mutual aid automatic aid agreement. This agreement dictates, depending on the needs of the incident, that all fire departments in the county will respond to a call for services as requested or required. Napa County Station 26 (St. Helena) and Napa County Station 12 (Yountville) provide automatic aid on all residential and commercial structure fires in the City of St. Helena (Sorensen, 2017).

Fire Insurance Rating

In 2010, the Insurance Services Office (ISO) fire insurance rating improved from a level 5 to a level 4. In 2015, the ISO rating improved again, from a level 4 to a level 3. The ISO organization analyzes and provides statistical information on risk, which heavily impacts residential and commercial insurance rates. The ISO Public Protection Classification (PPC) rating is from 10 to 1, with "1" being the best rating available. ISO evaluates cities and assesses a PPC based on a variety of technical and demographic factors for each individual city and their fire department (such as the equipment a fire department owns, distance between fire hydrants, etc.). For example, ISO requests fire departments conduct 20 hours of training per firefighter, each month, in order to maximize points for every training aid. The improvement of the St. Helena Fire Department from an ISO rating of 4 to a rating of 3 is significant for a city of approximately 6,000 citizens. Historically, very few cities ever received a "Class 1" rating.

Emergency Water

Fire hydrant placement throughout the city is consistent with National Fire Protection Association (NFPA) standards, which the St. Helena Fire Department enforces in all new construction and redevelopment. Many residential areas of the city have low emergency water flows (“fire flows”) or water pressure. Fire flows in these areas, while below standard, would be adequate for a single

residential fire. However, they would be insufficient for multiple residential fires (i.e., a major conflagration) (City of St. Helena, 2017).

Hazardous Materials Remediation

The St. Helena Fire Department is the first responder to hazardous materials incidents in the city. The Fire Department's procedure is to call in the Napa County Hazardous Response Team, as Napa County maintains the equipment, supplies, and trained personnel to address hazardous spills. Hazardous materials issues are discussed in more detail in Section 3.7, Hazards and Hazardous Materials, of this EIR.

Development Review Procedures

The St. Helena Fire Department routinely reviews development applications and provides conditions of approval to address requirements for fire sprinklers, emergency access, and other fire-related concerns (City of St. Helena, 2017).

Police Service

The St. Helena Police Department (SHPD) provides police services within the city limits. The SHPD maintains 24-hour security patrol throughout the community (City of St. Helena, 2017). Specific services that SHPD provides include: crime prevention, animal control services, parking and traffic control, youth education, community awareness, and criminal investigations (MSR, 2017).

Staffing

The Police Department is based at 1480 Main Street in St. Helena (Figure 3.12-1). In 2018, the Police Department had 17 full-time employees (including the Acting Chief of Police and sworn officers), three part time employees, one contract employee, and seven volunteers, for a total of 28 personnel (Imboden, 2018). There is a possibility of hiring an interim contract Chief in the near term. The Police Department strives to maintain a staffing ratio of approximately two sworn police staff for every 1,000 residents (City of St. Helena, 2017).

Equipment

The Police Department maintains four patrol cars, one K9 unit, one Community Service Officer (CSO) vehicle, one admin vehicle, one training vehicle, one Global Electric Motocar (GEM), and one dual purpose motorcycle (MSR, 2017).

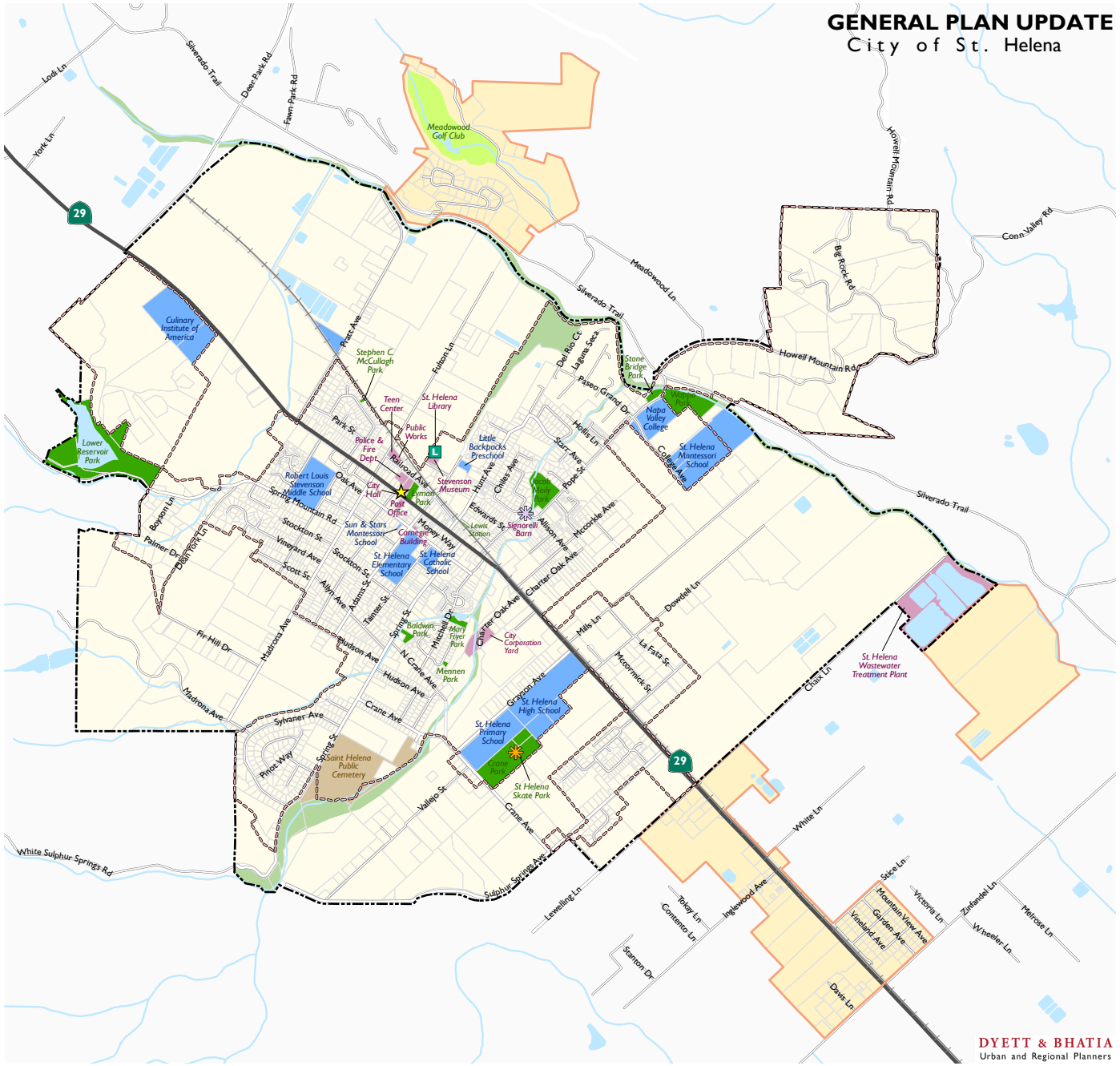
Service Calls and Response Times

In addition to calls within the City of St. Helena, the Police Department responds to incidents in surrounding unincorporated areas based on separate mutual aid agreements with California Highway Patrol, the Calistoga Police Department, and the County of Napa. The Police Department has an average response time goal for all Priority One calls of three minutes or less. In 2017, the Police Department's average response time Priority One calls was four minutes and 27 seconds (Imboden, 2017). The Police Department averaged roughly 4,567 calls for service from 2008-2015 with general consistency across all years (MSR, 2017).

Figure 3.12-1

Educational Institutions and Public Facilities

- City Hall
- Library
- Signorelli Barn
- Skate Park
- Educational Facilities
- Parks
- Cemetery
- Public Facilities
- Open Space
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Schools

Public Schools

The St. Helena Unified School District (SHUSD) provides educational services for students of all grades in elementary, junior, and high school in the Planning Area, as well as throughout nearby portions of Napa County. As shown in Figure 3.12-1, all four schools in the district are within the Planning Area. The district maintains four schools: a primary school, an elementary school, a middle school, and a high school. Enrollment trends for each SHUSD school in the are shown in Table 3.12-2.

Table 3.12-2: St. Helena Unified School District Enrollment Trends

Grades Served	*2014-2015 Enrollment*	*2015-2016 Enrollment*	*2016-2017 Enrollment*	*2017-2018 Enrollment*
Kindergarten	86	92	82	79
1st-6th grade	483	477	470	474
7th-8th grade	192	186	179	170
9th-12th grade	508	475	469	464
Total	**1,269**	**1,230**	**1,199**	**1,192**

Note: Numbers may not sum due to rounding.

Sources: California Department of Education, 2018; Dyett & Bhatia, 2018.

As of 2018, the district's schools served a total of 1,192 students in Transitional Kindergarten through 12th grade. With a general trend in declining enrollment in recent years, the district anticipates adequate capacity in the near term, and generally into the future (California Department of Education, 2018). SHUSD also participates in the District of Choice program, which allows students from outside of the district to enroll in the district's schools.

There have been recent improvements and measures taken to support ongoing and future provision of educational services by the District. Since 1997, the district has received community support for three General Obligation Bond programs that have funded a variety of facility projects over the years. The St. Helena Unified School District has a Facilities Master Plan from 2010, which projects enrollment for the next 10 years. It demonstrates there is no need for any new facilities, as enrollment is projected to be below capacity for every grade level. There was an update on the progress made in 2016, which included new facilities: a playground for St. Helena Elementary School, district-wide technology facility, St. Helena High School Performing Arts Center, softball field, baseball field, tennis courts, Robert Louis Stevenson Middle School roofing, and heating, ventilation, and air conditioning. That same year, the District also came out with a list of high-priority facility projects that were anticipating completion in 2016. These projects included shade structures, door locks, and roof replacements (St. Helena Unified School District,

2016). Additionally, in an effort to ensure adequate facilities are available to accommodate any potential future growth, the School district has development impact fees set in place for residential and commercial development projects.

Other Schools

There are 2 private schools in St. Helena: St. Helena Montessori (880 College Avenue), which educates students from preschool to 9th grade; and the Culinary Institute of America at Greystone (2555 Main Street), which is a private college specializing in culinary arts. CEQA is mainly concerned with public schools, as increased enrollment could trigger the need to spend public funds on construction that could result in environmental impacts.

Libraries

The St. Helena Public Library contains over 75,000 books, DVDs, CDs, newspapers, magazines and other media. The library also houses the archives of the Napa Valley Wine Library and the St. Helena Historical Society. The Robert Louis Stevenson Museum is also located on the library site (see Figure 3.12-1). In 2015-16, the library had 51 visits per hour open and circulated 239,862 items. The existing library facility does not adequately house the Children's department, provide enough private study areas for students, or offer sufficient space or parking for hosting events, which, collectively, were attended by over 17,000 individuals, most of whom drive automobiles to the library (Kreiden, 2015).

The library receives public funds and is also sustained by the fundraising efforts of the Friends & Foundation, St. Helena Public Library. This 501 (c)(3) not for profit public benefit corporation has subsidized the library's budget for materials and provided for its programming. St. Helena's library consistently ranks as one of the top public libraries in the state and offers a wide variety of services for residents of all ages. The library enjoys the highest circulation per capita in California, and nearly four times more visits than the state average per year in 2015-16 (California State Library, 2016).

The library does not have any plans to expand or construct a new facility, neither are there plans to increase staffing or equipment levels (Kreiden, 2018). Its only remodel was done in 2010. There is not an established service ratio that the City is required to meet.

Parks and Recreational Facilities

Existing Parks

As shown in Table 3.12-3 and Figure 3.12-2, the City of St. Helena maintains 11 public parks. There are eight mini parks, two neighborhood parks, and one community park. The parks provide a total of approximately 27 acres of parkland. St. Helena's public schools also add to the amount of parkland in the city, bringing the total to almost 34 acres.

Table 3.12-3: Existing Parks Within the City of St. Helena

Category	*Park*	*Number of Acres*	*Characteristics*
Mini	Baldwin Park	0.76	Mowed grass; picnic tables; handicapped-accessible from Voorhees Circle
	Lewis Station	0.13	"Pocket park" with picnic tables, benches, and restroom
	Lyman Park	0.89	Picnic tables; grassy areas; children's play area; gazebo for events; one restroom
	Mary Fryer Park	0.84	Picnic tables; play equipment designed for pre-school-aged children
	Mennen Park	0.17	Nut and fruit trees, barbeque amenities, walking paths, grassy areas
	St. Helena Skate Park	0.41	Skatepark
	Stephen C. McCullagh Park	0.14	Sandbox, climbing rock and rope structures, benches, play area
	Stonebridge Park	0.75	Located on the Napa River; grassy areas with limited parking
Neighborhood	Jacob Meily Park	5.42	Play field; heritage orchard; picnic area; children's playground; restroom
	Wappo Park	6.65	Trail and picnic facilities
Community	Crane Park	11.27	Six lighted tennis courts; six lighted bocce courts; two Little League baseball fields; horseshoe pits; children's playground; two restrooms; picnic areas; Farmer's Market; skate park
School	St. Helena Elementary School Field	2.41	Open grass area; baseball field; soccer field
	Robert Louis Stevenson Middle School Field	2.16	Track field
	St. Helena Primary School Field	1.85	Open grass area
Total (without school land)		27.43	
Total (with school land)		33.85	

Sources: City of St. Helena, 2018; Dyett & Bhatia, 2018

Compliance with Municipal Park Standards

The City of St. Helena has a standard of 5.0 acres per 1,000 residents, as provided in the 1993 General Plan. On the basis of the 2018 population of 5,900 and park acreage of 27.43, St. Helena's parkland to resident ratio is 4.65 acres per 1,000 residents. Factoring in six acres of school parkland, the City meets its standard and maintains 5.74 acres of parkland per 1,000 residents.

State Parks

Other parks in the vicinity include two state parks: Bothe-Napa Valley State Park, a 1,900-acre park located on the west side of State Route 29 which offers camping, picnicking, swimming, and hiking trails; and the adjoining 0.75-acre Bale Grist Mill State Historic Park, the site of a water- powered grist mill that was built in 1846 (California State Parks, 2018). Both parks are located about five miles outside of city limits.

Recreational Facilities

The City of St. Helena Recreation Department provides programming for youth, teens, adults, and seniors. The City offers a wide range of programming, including sports leagues, bocce ball, summer camps, yoga in the park, martial arts classes, aqua aerobics, and more. Some classes are held at the St. Helena Recreation Department, located at 1574 Railroad Ave, while other classes are held at the Carnegie Building at 1360 Oak Avenue. Most programs offered by the City have a participant fee, but some are free, such as yoga in the park.

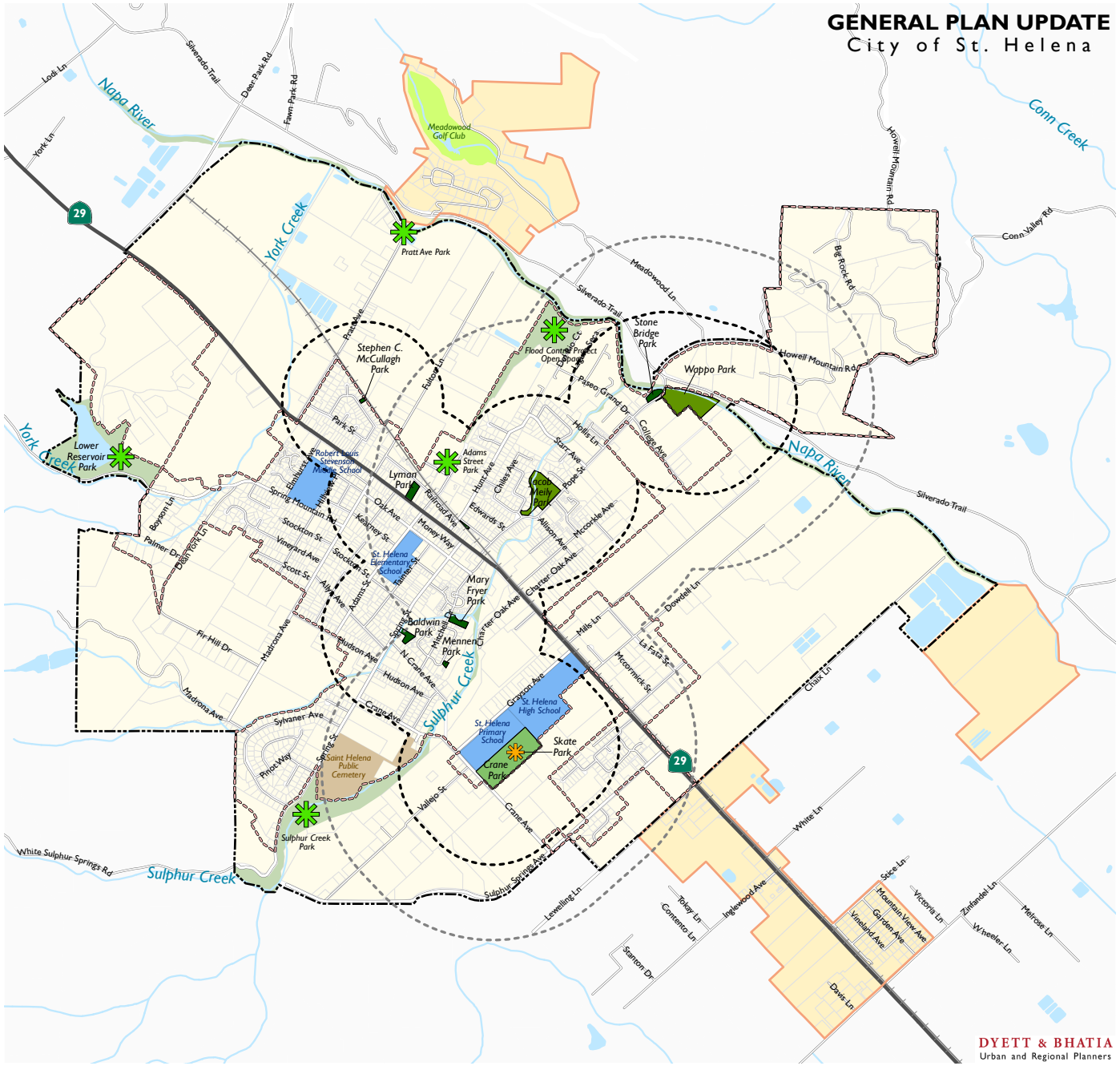
As the Recreation Department does not have space for active uses, such as aquatics, tennis, and softball, the City utilizes the fields in public parks, as well as the pool at St. Helena High School when school is not in session.

The Carnegie Building, built in 1908, is over 5,000 square feet. According to St. Helena's SHAPE Committee (St. Helena Assets Planning Engagement), it cost $81,488 in repairs to bring the building up to code. It will cost another $537,627 to maintain the building for the next 10 years (SHAPE, 2018). Its primary use since 1978 has been as a recreation center.

Figure 3.12-2

Parks and Recreation Facilities

- Mini Park
- Neighborhood Park
- Community Park
- Open Space
- Skate Park
- Potential new park site
- Parks Quarter Mile Service Radius
- Parks Half Mile Service Radius
- Golf Course
- Public Schools
- Cemetery
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

REGULATORY SETTING

Federal Regulations

There are no relevant federal regulations that pertain to this topic.

State Regulations

California Fire Code, Code of Regulations Title 24, Part 9

The California Fire Code establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems, such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

School Site Selection and Construction, California Education Code and California Public Resources Code

California Education Code Part 10.5, Chapter 1 School Sites

Sections 17210 to 17224 of the California Education Code governs the evaluation and selection of new sites and additions to existing sites for public schools, and for charter schools seeking state funding for school property acquisition or construction. Section 17211 requires the governing board of a school district to evaluate property proposed for a new school site or addition to an existing site at a public hearing prior to acquisition. Section 17212 requires the governing board of a school district to evaluate expert investigations into all factors affecting the public interest regarding a proposed school site prior to acquisition, including geological and soil engineering studies of such a nature as to preclude siting of a school in any location where the geological and site characteristics are such that the construction effort required to make the building safe for occupancy is economically infeasible. Under section 17212, the evaluation should also include the site's location in respect to population, transportation, water supply, waste disposal, utilities, traffic hazards, and surface drainage conditions, and other factors affecting the costs of the project. The chapter precludes the selection of a site where hazardous geological or soil conditions, hazardous substances, or proximity to an airport would pose a danger to public health or safety.

California Education Code Part 10.5, Chapter 3 Construction of Buildings

The California Department of Education (CDE) establishes standards for the selection of school sites pursuant to Education Code Section 17251. In 2000, the CDE School Facilities Planning Division (SFPD) updated the Guide to School Site Analysis and Development, which was originally published in 1966. The guide assists school districts in determining the amount of land needed to meet their educational purposes according to CDE recommendations.

California Education Code Part 10.5, Chapter 6 Development Fees, Charges, and Dedications

Pursuant to California Education Code Section 17620(a)(1), the governing board at any school district is authorized to levy a fee, charge, dedication, or other requirement against any

construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities. As provided in California Government Code Section 65996, the payment of such fees is deemed to fully mitigate the impacts of new development on school services (City of St. Helena, 2017). Pursuant to this provision, the school district has enacted a requirement for fees.

California Public Resources Code Section 21151.8

Public Resources Code Section 21151.8 requires that an EIR or negative declaration for a project involving the purchase of a school site or the construction of a new elementary or secondary school by a school district must include information on potential safety and health hazards to school occupants, including the presence of hazardous waste, hazardous substance release, pipelines, and air quality risks.

SB 50 (Statutes of 1998), State School Funding, Education Code Section 17620

California Education Code 17620 establishes the authority of any school district to levy a fee, charge, dedication, or other requirements against any development within the school district for the purposes of funding the construction of school facilities, as long as the district can show justification for the fees. Senate Bill 50 was adopted in 1998. The legislation limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development. It also authorizes school districts to levy statutory developer fees at levels higher than previously allowed and according to new rules.

Quimby Act

The 1975 Quimby Act (California Government Code section 66477) authorized cities and counties to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. Under the Quimby Act, fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services communitywide; however, revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities. The act states that the dedication requirement of parkland can be a minimum of three acres per thousand residents or more, and equal to the existing parkland provision (up to five acres per thousand residents) if the existing ratio is greater than the minimum standard. In 1982, the act was substantially amended. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must show a reasonable relationship to a project's impacts as identified through studies required by CEQA.

Local Regulations

City of St. Helena Municipal Code

Chapter 3.32 Development Impact Fees

Section 3.32.050 mandates that the City of St. Helena collect public safety impact fees to provide adequate police and fire protection facilities.

Section 3.32.060 mandates that the City of St. Helena collects civic improvement impact fees to provide for adequate civic improvements, including the city's library and administrative facilities.

Napa County General Plan Recreation and Open Space Element

The Recreation and Open Space Element of Napa County's General Plan focuses on recreational open spaces. Policies in this element touch on the acquisition, design and maintenance of recreational open space, trails and facilities in ways that promote increased access to public parks, protect natural resources, enhance natural habitats, and conserve agricultural lands. Recognizing that jurisdictions within the County generally provide neighborhood and community parks and urban recreation, the priority of the County is generally to provide parks that are focused on nature-based recreation.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:**

- **a) Fire protection,**
- **b) Police protection,**
- **c) Schools,**
- **d) Parks, or**
- **e) Other public facilities;**

Criterion 2: **Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or**

Criterion 3: **Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.**

METHODOLOGY AND ASSUMPTIONS

Schools

Demand for school facilities at buildout is based on the projected change in the number of housing units resulting from buildout of the Proposed Plan and factors representing the estimated number of students in each school associated with the number of housing units in the city, or student generation rates. The student generation rates were estimated based on the number of students enrolled in each school in 2018 and the number of housing units estimated in 2018. For 2018, 18

percent of the student body was assumed to be interdistrict/District of Choice transfers from outside of the city, based on information from a 2017 presentation on district enrollment (SHUSD, 2017). These rates were then adjusted based the expected change in the percentage of school aged children in Napa County, as projected by the Department of Finance (DOF) (DOF, 2018). The resulting student generation rates for 2040 are shown in Table 3.12-4. The rates reflect a projected overall decrease in the school-aged population in Napa County of about 18 percent between 2018 and 2040.

Table 3.12-4: Assumed Student Generation Rates (2040)

Grade	*Students per Housing Unit*
Kindergarten	0.02
1st-6th grade	0.12
7th-8th grade	0.04
9th-12th grade	0.11

Source: Dyett & Bhatia, 2018

Study Areas

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to Public Services and Recreation in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to Public Services and Recreation in the study areas except for the potential impacts from the implementation of policies and actions related to the delivery of municipal services discussed below. Cumulative impacts related to Public Services and Recreation are discussed in Chapter 5: CEQA Required Conclusions.

PROPOSED RELEVANT POLICIES AND IMPLEMENTATION ACTIONS

Land Use and Growth Management Element

- ***LU2.D*** Continue to require residential developers to contribute toward the provision of community facilities and services (e.g. parks, recreation facilities and programs, education facilities, traffic and transportation facilities and services), consistent with State law requiring a nexus between project impacts and required mitigation.
- ***LU6.1*** Provide a wide-range of high-quality public facilities, including parks, multi-use trails, schools, fire and police services, water and wastewater systems, and community centers.
- ***LU6.A*** Update the zoning ordinance and map to be compatible with the General Plan use maps and designation and public facilities and services element.

- ***LU6.B*** Pursue sites for future public facilities, including parks, consistent with projected growth.

Economic Sustainability Element

- ***ES1.3*** Ensure the long-term infrastructure needs and priorities of the community are met as part of an economic approach to economic vitality and sustainability.

Public Facilities and Services Element

- ***PF5.4*** Require that the approval of residential, commercial or industrial development be contingent upon the mitigation of the impact of such development on the St. Helena Unified School District's ability to serve school-age children.
- ***PF5.A*** Assist the School District in collecting school facility development fees generated by new development. Partner with the District to identify, establish and implement additional measures to ensure that the highest quality of education is provided.

Open Space and Conservation Element

- ***OS2.3*** Preserve open space for recreational uses, including a bicycle and pedestrian trail system along creek corridors when compatible with riparian vegetation and wildlife habitat. Where possible, integrate stream corridors with trails and other recreational open space, provided that the vegetation, habitat value, and water quality is not significantly impacted.

Public Health, Safety, and Noise Element

- ***PS4.1*** Use the Zoning Code to define a transitional zone around industrial areas to protect the health and safety of residential neighborhoods.
- ***PS4.2*** Limit development in hillside areas where wildfire hazard is high to very low intensity, or maintain them as open space in order to prevent the loss of lives, injuries and property damage due to wildfires.
- ***PS4.3*** Protect St. Helena residents from health and safety impacts related to the use, storage, manufacture and transport of hazardous materials.
- ***PS4.4*** Discourage new uses that rely extensively on the use of hazardous materials.
- ***PS4.5*** Facilitate communication and education about fire safety, non- point source pollution, household hazardous waste disposal and recycling opportunities.
- ***PS4.6*** Ensure that all streets and roads are adequate in terms of width, turning radius and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress.
- ***PS4.A*** Designate areas in St. Helena that are prone to fire hazards and make this information available to the community.
- ***PS6.C*** Continue to collaborate with regional agencies and neighboring jurisdictions to develop and implement a regional emergency coordination plan and agreement for police, fire and emergency medical services.

Parks and Recreation Element

- ***PR1.3*** Identify park land opportunity sites to ensure that the City can meet to exceed its standard of 5.0 acres per 1,000 residents. Locate new parks to ensure that City park facilities are equitably distributed throughout all areas of the City and residents can access them safely and conveniently.
- ***PR1.A*** Develop a comprehensive, long-range Parks and Recreation Master Plan to aid the City in creating an integrated system of parks. The plan should be updated periodically to address changing recreation interests, trends, needs, and priorities. The Parks and Recreation Master Plan should:
  - Identify long-term goals for the Parks and Recreation Department and the community;
  - Describe current and future needs, interests, and community preferences for improving new parks and community facilities, and expanding or initiating new programs and services;
  - Present a long-range plan for physical park and community facility improvements;
  - Define performance standards (such as park function, size, and service area radii) and further develop park design guidelines and criteria;
  - Prioritize projects;
  - Identify the proportion of Civic Improvement Fees that will be contributed to the development and maintenance of parks and recreational facilities; and
  - Outline funding mechanisms and strategies for managing the City's commitments, so that new requests and initiative are considered in light of existing commitments

  Subsequent actions in this Element may be included in the Parks and Recreation Master Plan.
- ***PR1.B*** Create opportunities to develop additional parks at the following locations:
  - The City-owned land along the Napa River and Pratt Avenue for passive recreational uses;
  - Land adjacent to York and Sulphur Creeks, as well as the Napa River levee;
  - The water treatment plant site;
  - The City-owned Lower Reservoir area for a water-oriented community park and recreation facility.
  - Ensure that new parks are developed to include bicycle and pedestrian trails.
- ***PR4.C*** Identify locations to accommodate active recreational uses to meet citywide needs. Potential locations include:
  - Bicycle and pedestrian trails, interpretive areas, trail heads, and comfort stations along York and Sulphur creeks and the Napa River; and
  - A community park at the City-owned Lower Reservoir area.

IMPACTS

Impact 3.12-1 **Implementation of the Proposed Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. (Less than Significant)**

Fire Service

The Fire Department has set a goal for a maximum response time of eight minutes within city limits. In 2017, the Department responded to approximately 69 percent of all calls in fewer than seven minutes, and the department does not anticipate the need to increase staffing levels or construct a new facility in order to provide service for future population growth (Sorenson, 2015). Although the projected addition of residents and employees by 2040 would likely increase the demand for emergency fire response and preventive services in St. Helena, the increase is modest enough that it is not expected to create a need for new or expanded fire protection facilities to serve the city or study areas.

Policies and implementing actions included in the Proposed Plan monitor the need for additional public facilities, pursue sites for future facilities consistent with projected growth, and ensure that new development contributes toward the provision of community facilities and services (Policy LU6.1 and Implementing Actions LU2.D, LU6.A, and LU6.B). Furthermore, proposed policies regarding emergency access, resiliency in the transportation system, and acceptable travel flow would ensure that emergency vehicles could efficiently gain access to sites, thereby reducing the need for new facilities located closer to new development and also keeping service demand increases to a minimum (Policies PS4.1 and PS4.6 and Implementing Actions PS4.A, PS4.F, and PS6.C). In addition, individual development projects would be subject to Fire Department review and approval and would be required to pay the City's standard public safety impact fees. Any new fire facilities would be sited and constructed according to policies in the Proposed Plan that address potential environmental impacts as discussed throughout this EIR.

Therefore, overall, the increase in service population would not require construction of new facilities or expansion of existing ones and continued compliance with applicable policies and regulations as well as implementation of Proposed Plan policies would ensure that impacts are less than significant.

Police Service

The projected addition of residents and employees by 2040 would likely increase the demand for police response the Planning Area. SHPD has set an average response time goal for all Priority One calls of three minutes or less. In 2017, the Department's average response time for Priority One calls was four minutes and 27 seconds, so demand for police services would increase, but a need for a new or expanded police facility is not currently expected (Imboden, 2017).

The Proposed Plan contains policies and implementing actions for monitoring the need for additional public facilities, pursuing sites for future facilities consistent with projected growth, and ensuring that new development contributes toward the provision of community facilities and services (Policy LU6.1 and Implementing Actions LU2.D, LU6.A, and LU6.B). In addition, individual development projects would be subject to Police Department review and approval and would be required to pay the City's standard public safety impact fees. Any new police facilities would be sited and constructed according to policies in the Proposed Plan that address potential environmental impacts as discussed throughout this EIR.

Based on these factors, coupled with the existing regulations and proposed policies and implementing actions, this impact is considered less than significant.

Schools

Applying the assumed student generation rates from Table 3.12-4, to the 3,100 projected housing units in the city at buildout, the total number of SHUSD students enrolled from the city is not expected to increase substantially through 2040. Accordingly, the SHUSD does not anticipate the need for new or expanded facilities to accommodate growth under the Proposed Plan (SHUSD, 2018). This reflects that although the number of housing units in the city are anticipated to increase, demographic changes in the county would cause the overall trend in declining enrollment to continue. Further, SHUSD may also elect to change its transfer policy, adjust class sizes, or consider the use of portable classrooms in order to ensure adequate space for students in the future (SHUSD, 2018). Any new school facilities would be sited, designed, and constructed according to the California Education Code and policies in the Proposed Plan that address potential environmental impacts as discussed throughout this EIR.

As there is no foreseeable need for the construction of new educational facilities to meet growth in enrollment this impact is considered less than significant.

Parks

St. Helena currently has approximately 27.5 acres of City parks and 6.5 acres of School fields. With a 2018 population of approximately 5,900 residents, this equates to 4.66 acres of City parks per thousand residents and 5.5 acres of City and School parkland per thousand residents. Proposed policies PR1.B and PR4.C call for the City to acquire land and construct a new park of 21.03 acres, increasing the ratio to 6.64 acres of parkland per 1,000 residents at buildout. Including school parkland, this ratio would increase even more to 7.52 acres (2040 data) per 1,000 residents. Thus, with implementation of proposed policies PR1.B and PR4.C at buildout in 2040, the City would have in excess of 5 acres of parkland per thousand residents, satisfying the established standard.

The Proposed Plan identifies five potential new park sites, shown in Figure 3.12-1. These include the 21.03-acre, City-owned "Lower Reservoir" property; a 15-acre flood control project site that would include provisions for passive open space use, such as pathways and interpretive trails; a park along the Napa River at Pratt Avenue; a park at Adams Street near City Hall; and a park along Sulphur Creek. With the exception of the proposed Adams Street park, the park sites are proposed in the vicinity of riparian corridors. Thus, development of these park facilities could have a significant impact if it adversely affected biological resources or hydrology in the riparian corridors or other sensitive habitats. As discussed in Section 3.4: Biological Resources, the Proposed Plan includes a range of policies to protect biological resources and sensitive habitats, particularly along

the river and creek corridors. Similarly, as discussed in Section 3.9: Hydrology and Water Quality, a combination of existing regulations and Proposed Plan policies would reduce any impacts to hydrology or water quality. Further, proposed Implementing Action OS2.3 would prioritize the quality of vegetation, habitat value, and water quality along any stream corridors where trails or recreational open space would be sited.

Development of future parks would be subject to separate environmental review to evaluate and mitigate any project-specific environmental impacts when the precise details of location and design are available. Therefore, overall, compliance with existing regulations and implementation of Proposed Plan policies would ensure that impacts related to the provision and construction of parks would be less than significant.

Other Public Facilities

St. Helena offers its residents the St. Helena Public Library, as well as the Carnegie Building, which is used for community recreation classes. The Library does not have an established service ratio or trigger for new facilities. The anticipated growth of the resident and employee population associated with implementation of the Proposed Plan would not substantially increase demands for library services or create a need for new or expanded library facilities (Kreiden, 2018). Likewise, there is no service ratio standard that needs to be met for recreation facilities in St. Helena, and there would not substantially increase demand for community recreational facilities such that construction of new or expanded facilities would be required.

Further, the Proposed Plan contains policies and implementing actions including LU6.1, ES1.3, LU2.D, LU6.A, and LU6.B, which monitor the need for additional public facilities, pursue sites for future facilities consistent with projected growth, and ensure that new development contributes toward the provision of community facilities and services. Therefore, compliance with existing regulations and the Proposed Plan policies and implementing actions would ensure that impacts associated with the construction and expansion of other public facilities would be less than significant.

Mitigation Measures

None required.

Impact 3.12-2 Implementation of the Proposed Plan would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Less than Significant)

The projected increase in service population from implementation of the Proposed Plan could in turn place more physical demands on existing parks and facilities. An increase in the number of park users may cause parks and recreation centers to be in active use for longer periods of time and/or to be used more intensively over the course of a typical day. Without the construction of new parks, existing parks in St. Helena would continue to deteriorate and do so at a quicker pace than if there were more parks to enjoy, no matter how many park users there are. As a result, vital park elements such as vegetation, built structures, walking/biking paths, sport facilities, and others could face increased wear-and-tear over the course of the planning horizon and, without proper maintenance, their useful life could be shortened.

Potential impacts on existing facilities would be offset by the extensive list of policies and implementing actions providing for maintenance and improvement of existing parks and the planned park, thus preventing any substantial physical deterioration of existing or new facilities. Proposed implementing action, PR1.A, requires the implementation of a Parks and Recreation Master Plan that would provide a tool to track and plan for necessary improvements to the parks and recreation system. The Proposed Plan also includes policies such as PR1.3, which ensures that new parkland is distributed evenly throughout St. Helena, thus reducing the likelihood that any existing neighborhood, community, or regional parks, or other recreational facilities would experience overuse that could result in the physical deterioration of those facilities.

Furthermore, as described above there are two regional parks in Napa County, which are about 5 miles away from St. Helena and provide additional recreational resources. State parks are maintained by California through tax revenue. The modest population growth of 900 residents in the Planning Area that would occur incrementally over the next 20 years is not substantial enough to create a significant impact on regional parks or other recreational facilities. Therefore, impacts associated with substantial physical deterioration of park and recreation facilities resulting from implementation of the Proposed Plan would be less than significant.

Mitigation Measures

None required.

Impact 3.12-3 Implementation of the Proposed Plan would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. (Less than Significant)

Other public facilities in the Planning Area include the Carnegie Building, where community recreation classes are typically held. With a projected increase of 900 new residents to the Planning Area over a 20-year period, the Proposed Plan would not require new or expanded recreational facilities. Therefore, impacts associated with new recreation facilities would be less than significant with implementation of existing regulations and Proposed Plan policies.

Mitigation Measures

None required.

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3.13 Transportation and Traffic

This section assesses potential environmental impacts on the transportation system from future development under the Proposed Plan, including those related to performance standards, congestion management, air traffic patterns, hazards, emergency access, and public transit, bicycle, and pedestrian facilities. This section describes the existing transportation system, characteristics, and operations at major intersections within, and in the vicinity of, the City of St. Helena, as well as relevant federal, State, and local regulations and programs.

Responses to the NOP regarding topics addressed in this section included the following:

- Traffic impacts should be addressed in a holistic fashion, including regarding visitor-generated traffic; existing congestion problems, including queuing at intersections along State Route 29; potential traffic impacts due to increased Wine Train service; level of service non-compliance during peak periods; bike and pedestrian safety, including unsafe roadway crossings; and ease and comfort of crossing streets for pedestrian and bike users. These comments are addressed in Impacts 3.13-1, 3.13-2, and 3.13-6.
- The EIR should consider impacts to emergency access and evacuation, including on the impact of congestion on emergency vehicle response times; Napa River crossing congestion; and limited emergency vehicle access to parts of town only accessible by State Route 29. These comments are addressed in Impacts 3.13-4 and 3.13-5, as well as in Chapter 3.8: Hazards and Hazardous Materials.
- Caltrans submitted a letter responding to the NOP, advising that: a) the transportation impact analysis be conducted using VMT; b) that the alternatives analysis should discuss buildout of potential transit improvement projects that would reduce VMT associated with visitor trips to St Helena; c) that the EIR analyze cumulative impacts affecting cyclists and pedestrians considering the Bike Plan's methodology and augmenting as necessary; d) that the EIR consider primary and secondary effects on pedestrians, bicyclists, disabled travelers, and transit users, including countermeasures and trade-offs resulting from mitigating VMT increases, consistent with MTC's Regional Transportation Plan/Sustainable Community Strategies; e) that the City consider expanding transit and active transportation and reducing VMT from tourism through a Transportation Demand Management (TDM) program; and f) that the City estimate project-generated travel demand, estimate the cost of transit and active transportation improvements needed to support this demand, and identify potential funding sources for the needed improvements. These comments are addressed in Impacts 3.13-1, 3.13-2, and 3.13-6.

Environmental Setting

PHYSICAL SETTING

The circulation network serving the Planning Area consists of roadways, transit, bicycle, and pedestrian facilities. A description of travel characteristics, major transportation facilities, and existing travel conditions in the city is provided in the City of St. Helena General Plan 2030: Background Transportation Report (2009); a summary of those key travel characteristics is included in this section, and the full report is included in Appendix H.

Travel Characteristics

The Napa County Travel Behavior Study (NVTA and Fehr & Peers, 2014) included estimates of trip origin-destination patterns for the City of St. Helena. This data is summarized below in Table 3.13-1.

Table 3.13-1: Origin of Vehicle Trips Traveling to St. Helena During the Week

Origin	*Destination*	*Number of Total Trips*	*Percentage of Total Trips*
City of Napa	St. Helena	1,793	11%
St. Helena	St. Helena	6,450	39%
Calistoga	St. Helena	444	3%
Yountville	St. Helena	246	1%
Remainder of Napa County	St. Helena	6,680	41%
Elsewhere in California	St. Helena	841	5%
	Total	**16,454**	**100%**

Source: Table 17, Napa County Travel Behavior Study, 2014

According to the 2014 trip origin and destination data, about 60 percent of all trips with a destination in St. Helena originate from outside of the city. This reflects the high level of tourist trip activity in the city, but it also suggests that a jobs/housing imbalance may exist in the city. The jobs/housing imbalance exists because the number of jobs in the City of St. Helena far exceeds the number of residential units that provide housing for employees working within the city. Jobs/housing balance is a measure of the equilibrium between employment and residential units in a specific area. A more balanced ratio between jobs and housing can reduce travel times and traffic congestion in a given area because commute trips would be shorter and would be more readily made by bicycle or walking (in lieu of driving). The jobs/housing imbalance is exacerbated by the accelerating costs of housing in the community, which results in workers moving farther away from the city in search of more affordable housing.

Motor Vehicle Circulation

Roadways

The Planning Area lies on a north-west/south-east axis, with Main Street providing the backbone and the main route for intercity and regional travel. Main Street carries the designation of both State Route 29 (SR-29) and SR-128. For simplicity, this roadway is referred to as SR-29 in this EIR.[1] Additionally, all streets parallel to SR-29 are referred to as north-south routes, while streets perpendicular to SR-29 are referred to as east-west routes.

The street network to the west of SR-29 is a grid pattern of residential blocks connected to SR-29 by a series of east-west streets connecting residential areas. To the east of SR-29, the grid network is discontinuous due to the lack of parallel facilities to SR-29 to connect the east-west roadways. The existing street network is depicted in Figure 3.13-1.

SR-29

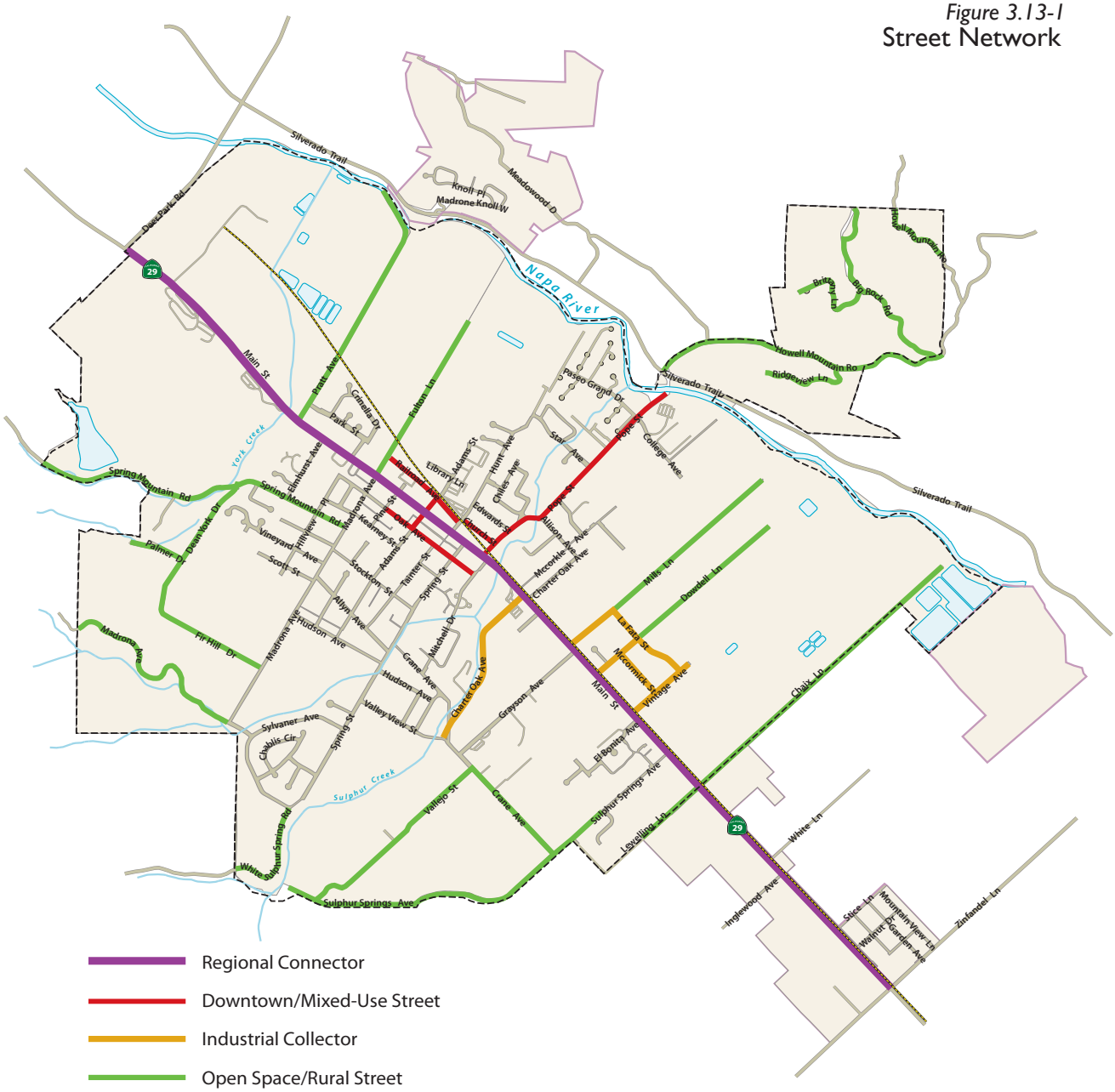
SR-29 is a two- to four-lane rural highway that stretches through Napa County from Vallejo at Napa County's southern border to Lake County in the north. Within the City of St. Helena, SR-29 has two travel lanes, one northbound and one southbound. SR-29 has parallel parking on both sides of the street and a center turn lane between Dowdell Lane and Madrona Street-Fulton Lane. SR-29 provides the primary route for travel within St. Helena and to further destinations around the region.

Since SR-29 is a major north-south thoroughfare for Napa County, heavy through traffic is typical along SR-29. Drivers often try to avoid congestion on SR-29 by using Silverado Trail to the east and alternate parallel routes through residential neighborhoods such as Oak Avenue and the Valley View/Crane Avenue corridor.

The Highway 29 Channelization Project was undertaken by the California Department of Transportation (Caltrans) and was intended to rehabilitate pavement, widen northbound and southbound shoulders, construct a two-way left turn lane, and improve the railroad crossing at Whitehall Lane along SR-29. The project limits were Mee Lane approximately 1.97 miles south of the St. Helena city limits to Charter Oak Avenue in the north, within the city limits. The Channelization Project was proposed by Caltrans in 2007, prior to the 2009 commencement of the Proposed Plan project by the City of St. Helena. The Channelization Project was constructed in 2017 and is now fully complete and operational.

[1] The vast majority of residents and users of the transportation system in Napa County consider the State Route 29-128 corridor as simply State Route 29, and this nomenclature has been used in the document for clarity.

Figure 3.13-1
Street Network



Source: *City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018.*

GENERAL PLAN UPDATE
City of St. Helena

North-South Streets

The following streets in St. Helena play key roles in the service of north-south automobile, bicycle, pedestrian and transit demand:

- **Main Street** serves as a regional conveyor of traffic volumes to and through downtown St. Helena. Main Street is signed as SR-29 and SR-128; continuations of Main Street as SR-29 lead to Lake County and Solano County. The St. Helena Fire Department and St. Helena Police Department typically use the Main Street corridor as a travel route during emergencies. Likewise, Main Street is a key connection to major hospital facilities, including St. Helena Hospital to the north of the city and Queen of the Valley Hospital in the City of Napa.
- **Silverado Trail** is parallel to SR-29 on the east side of St. Helena and extends between Soscol Avenue in the City of Napa to the south and Lake County Highway in the City of Calistoga to the north.
- **Spring Mountain Road** connects the City of St. Helena to the City of Santa Rosa and central Sonoma County. In the City of St. Helena, Spring Mountain Road provides a north-south
  connection in the western residential neighborhoods and runs near Robert Louis Stevenson Middle School.
- **Oak Avenue** is a two-lane intracity street that runs parallel to SR-29 to the west of the downtown commercial district. This street is the most immediate and continuous parallel route to SR-29 on the west side of the city and serves St. Helena Elementary School and Robert Louis Stevenson Middle School.
- **Valley View Street/Crane Avenue** is a two-lane, north-south street that that begins as a rural roadway at Sulphur Springs Avenue and transitions into a suburban residential collector north of Vallejo Street. This route provides an alternative connection (versus Main Street) for residences on the west side of the city to cross Sulphur Creek.

East-West Streets

The following streets in St. Helena play key roles in the service of east-west automobile, bicycle, pedestrian and transit trips:

- **Pratt Avenue** is a two-lane street that connects SR-29 to Silverado Trail on the north side of the city. Pratt Avenue provides access to both residential and winery uses, but lacks any north-south connections outside of SR-29. Pratt Avenue extends over a bridge above the Napa River to connect to Silverado Trail. As of July 2018, the bridge is closed due to storm damage from the winter of 2016/17. This bridge is anticipated to be reconstructed in the next few years.
- **Pope Street** is a two-lane street that runs parallel to Pratt Avenue (to the south) and connects SR-29 and downtown St. Helena to Silverado Trail via a historic bridge over the Napa River. Pope Street also provides access to suburban residential neighborhoods on the east side of SR-29.

- **Madrona Street/Fulton Lane** is a two-lane, east-west street. To the west of SR-29, Madrona Street provides access to residential neighborhoods and to Spring Mountain Road. To the east of SR-29, Madrona becomes Fulton Lane which provides "dead end" access to commercial and residential areas.
- **Adams Street and Spring Street** are both downtown streets that primarily provide access to the residential neighborhoods on the west side of the city.
- **Dowdell Lane** is a two-lane street to the east of SR-29 that provides access to a variety of agricultural and industrial uses located in the southeastern quadrant of the city.
- **Sulphur Springs Avenue** is two-lane street on the southern edge of the city that provides access to a variety of commercial and rural residential uses.

Other Streets

In addition to streets listed above, there are numerous local streets with low traffic speeds and volumes that provide direct access to abutting land uses. Most trips use local streets to reach the key north-south and east-west streets noted above. The low traffic speeds and volumes on these streets lend to their use for walking and bicycling.

Roadway Operations

Automobile Level of Service

Level of service (LOS) is a qualitative assessment of traffic conditions perceived by motorists. LOS generally reflects driving conditions such as travel time and speed, freedom to maneuver, and traffic interruptions. LOS uses quantifiable traffic measures such as average speed, intersection control delay, and vehicle volume-to-capacity ratio to determine driver satisfaction.

LOS is reported for individual intersections and is designated by a range of letters. LOS A represents the most uncongested conditions (free flow or low delay) and LOS F represents the most congested conditions (over-capacity with delays). LOS E represents conditions at facility capacity. Table 3.13-2 describes the characteristics of each LOS designation and presents the relationship between LOS and control delay for unsignalized and signalized intersections. For purposes of this EIR, the intersection level of service was analyzed.

Table 3.13-2: Intersection Level of Service Definitions

Level of Service (LOS)	*Unsignalized Intersection Control Delay (sec/veh)[1]*	*Signalized Intersection Control Delay (sec/veh)[a]*	*General Description*
A	0-10.0	0-10.0	Little to no congestion or delays.
B	10.1-15.0	10.1-20.0	Limited congestion. Short delays.
C	15.1-25.0	20.1-35.0	Some congestion with average delays.
D	25.1-35.0	35.1-55.0	Significant congestion and delays
E	35.1-50.0	55.1-80.0	Severe congestion and delays.
F	>50.0	>80.0	Total breakdown with extreme delays.

Note:
1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Source: 2010 Highway Capacity Manual, Transportation Research Board, 2010

Signalized delay is based on the whole-intersection average control delay, while unsignalized delay is based on the following criteria:

- **Side-street stop-controlled intersections.** Intersection control delay based on the worst stop-controlled approach for single-lane approaches or the worst stop-controlled movement for multi-lane approaches.
- **All-way stop-controlled intersections.** Intersection control delay based on the whole-intersection average control delay.

Existing Level of Service Standards

To assess the existing (2018) conditions for the roadway network, LOS for a series of study intersections in the Planning Area were compared to the LOS standards established in the existing (1993) City of St. Helena General Plan. The 1993 General Plan establishes LOS C as the desired standard for signalized intersections, except for signalized intersections on SR-29/Main Street, where LOS D is permitted. The existing General Plan establishes LOS C as the standard for unsignalized intersections.

Existing Intersection Conditions

Twenty-seven study intersections were analyzed to better understand the Planning Area's current traffic conditions. Of the 27 intersections studied, 26 are in the City of St. Helena; the only intersection in a study area is Pratt Avenue/Silverado Trail, which is under the jurisdiction of Napa County. These intersections were selected as those most likely to be affected by future development, based on a review of intersections evaluated in previous traffic studies in St. Helena. A weekday AM peak hour and weekday PM peak hour intersection analysis was performed for all 27 intersections. The study intersections are presented on Figure 3.13-2.

A Saturday midday peak hour analysis was performed at intersections where the ratio between the Saturday midday peak hour intersection total entering volume and the weekday AM or PM peak hour intersection total entering volume is at least 0.80. This calculation is summarized in Appendix

I. This screening calculation resulted in the inclusion of 12 of the 27 intersections in the Saturday analysis. These intersections include all study intersections along the Main Street corridor (nine intersections), all study intersections along the Silverado Trail corridor (three intersections), and the intersection of Mitchell Drive/Oak Avenue.

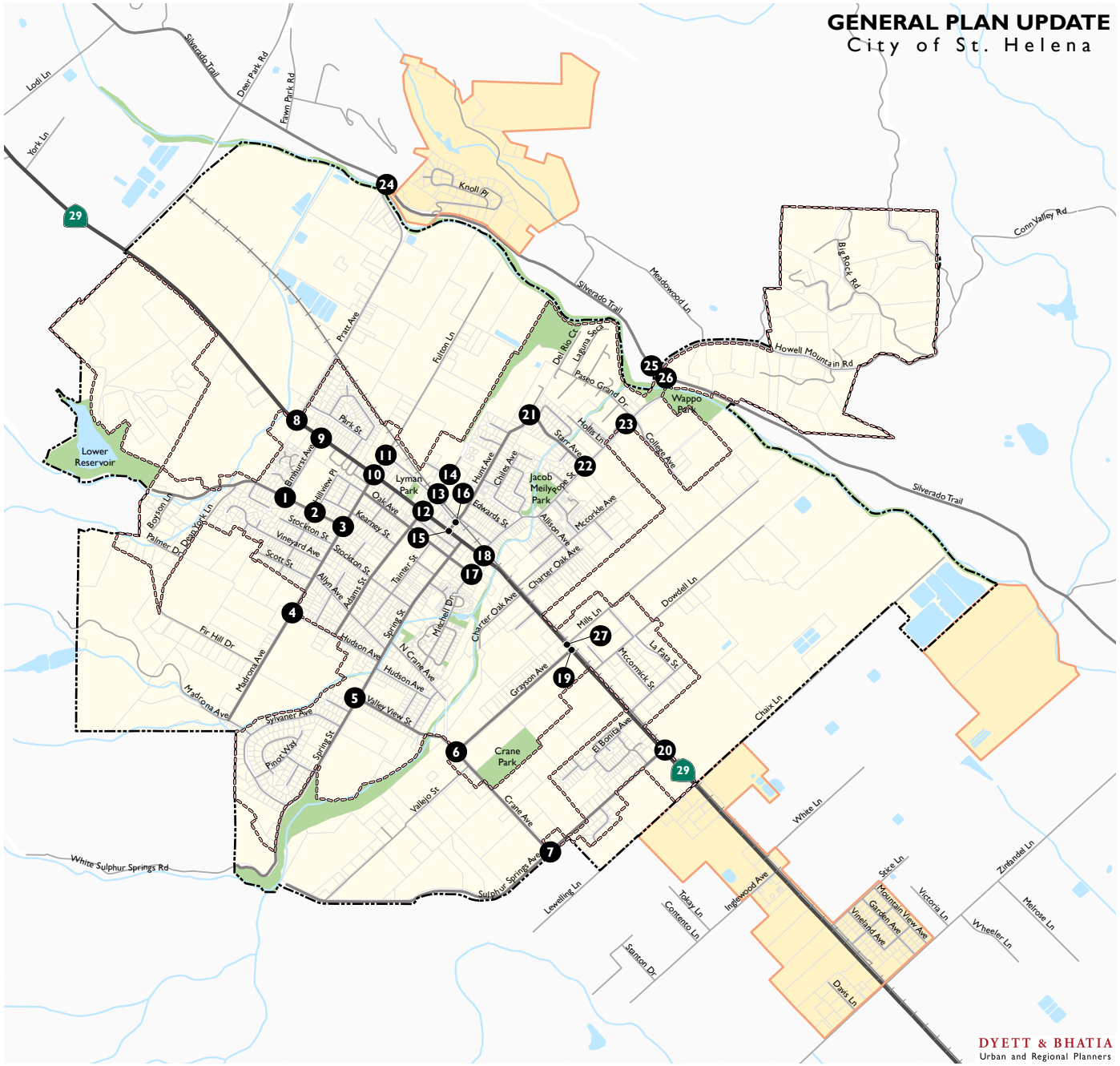
The intersection analysis included an extensive multi-modal transportation data collection effort (completed in late April and early May 2018) and analysis of intersection operations using the 2010 Highway Capacity Manual methodologies as applied in the Synchro 10 software package. The Existing Conditions Synchro models were calibrated to field-observed intersection operating conditions.

Intersections are typically analyzed based on the average delay (in seconds) that vehicles have to wait at an intersection before proceeding through. Table 3.13-3 shows the existing delay and LOS of the selected intersections. These values were calculated based on traffic counts conducted by Fehr & Peers in May 2018. Appendix I contains the LOS computations for these intersections.

Figure 3.13-2

Intersection Analysis Study Locations

- Study Intersections
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Table 3.13-3: Existing Conditions Intersection Level of Service

Intersection	*Control*	*Weekday AM Peak Hour*		*Weekday PM Peak Hour*		*Weekend Midday Peak Hour*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
1. Spring Mountain Road/Elmhurst Avenue	SSSC	5.1 (10.7)	A (B)	3.0 (10.5)	A (B)	N/A[d]	N/A[d]
2. Spring Mountain Road/Hillview Place	SSSC	1.9 (10.7)	A (B)	2.4 (10.6)	A (B)	N/A[d]	N/A[d]
3. Spring Mountain Road/Madrona Avenue	SSSC	4.7 (11.8)	A (B)	5.0 (11.7)	A (B)	N/A[d]	N/A[d]
4. Madrona Avenue/ Hudson Avenue	SSSC	6.0 (9)	A (A)	5.7 (8.7)	A (A)	N/A[d]	N/A[d]
5. Spring Street/ Valley View Street	SSSC	8.8 (12.9)	A (B)	7.5 (10.8)	A (B)	N/A[d]	N/A[d]
6. Grayson Road/ Crane Avenue	AWSC	13.6	B	8.8	A	N/A[d]	N/A[d]
7. Sulphur Springs Avenue/Crane Avenue	SSSC	4.5 (10.0)	A (A)	3.8 (9.7)	A (A)	N/A[d]	N/A[d]
8. Main Street/ Pratt Avenue	SSSC	1.0 **(34.8)**	A **(D)**	8.8 **(>120)**	A **(F)**	0.9 (24.4)	A (C)
9. Main Street/ Elmhurst Avenue	SSSC	1.2 **(35.6)**	A **(E)**	3.0 **(77.3)**	A **(F)**	0.9 **(28.6)**	A **(D)**
10. Main Street/ Madrona Avenue-Fulton Lane	Signal	13.2	B	11.3	B	22.6	C
11. Fulton Lane/ Railroad Avenue	SSSC	4.5 (10.1)	A (B)	6.6 (10.4)	A (B)	N/A[d]	N/A[d]
12. Main Street/ Adams Street	Signal	23.2	C	21.1	C	37.8	D

Intersection	*Control*	*Weekday AM Peak Hour*		*Weekday PM Peak Hour*		*Weekend Midday Peak Hour*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
13. Adams Street/ Railroad Avenue	AWSC	10.0	A	11.2	B	N/A[d]	N/A[d]
14. Adams Street/ Library Lane	SSSC	2.2 (10.6)	A (B)	4.9 (12.4)	A (B)	N/A[d]	N/A[d]
15. Main Street/ Hunt Avenue	SSSC	0.7 (17.1)	A (C)	1.0 (18.5)	A (C)	1.3 (22.8)	A (C)
16. Hunt Avenue/ Railroad Avenue	SSSC	5.5 (14.4)	A (B)	6.8 (14.0)	A (B)	N/A[d]	N/A[d]
17. Mitchell Drive/ Oak Avenue	SSSC	5.5 (10.3)	A (B)	5.9 (10.2)	A (B)	5.5 (9.7)	A (A)
18. Main Street/Pope Street-Mitchell Drive	Signal	**>120**	**F**	**111.4**	**F**	**>120**	**F**
19. Main Street/ Grayson Avenue	Signal	36.5	D	20.9	C	26.7	C
20. Main Street/ Sulphur Springs Avenue	SSSC	1.6 **(26.6)**	A **(D)**	1.9 **(27.1)**	A **(D)**	1.1 (22.0)	A (C)
21. Hunt Avenue/ Starr Avenue	AWSC	7.6	A	7.4	A	N/A[d]	N/A[d]
22. Pope Street/ Starr Avenue	SSSC	2.1 (15.4)	A (C)	2.0 (14.1)	A (B)	N/A[d]	N/A[d]
23. Pope Street/Paseo Grande Drive-College Avenue	SSSC	6.0 **(27.1)**	A **(D)**	2.2 (15.5)	A (C)	N/A[d]	N/A[d]
24. Silverado Trail/ Pratt Avenue	SSSC	*Pratt Avenue closed under existing conditions due to storm damage.*[e]					
25. Silverado Trail/ Howell Mountain Road	SSSC	0.5 (14.6)	A (B)	0.9 (17.8)	A (C)	0.6 (15.2)	A (C)

Intersection	*Control*	*Weekday AM Peak Hour*		*Weekday PM Peak Hour*		*Weekend Midday Peak Hour*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
26. Silverado Trail/ Pope Street	SSSC	5.7 **(33.1)**	A **(D)**	7.0 **(37.1)**	A **(E)**	5.7 **(29.8)**	A **(D)**
27. Main Street/ Mills Lane	SSSC	0.1 (14.5)	A (B)	0.2 (14.4)	A (B)	0.2 (21.1)	A (C)

Notes:

a. Signal = Signalized intersection; AWSC = All-Way Stop-Controlled intersection; SSSC = Side-Street Stop-Controlled intersection

b. Side-Street Stop-Controlled intersection delay is presented as: Whole-intersection Average Delay (Worst Approach or Worst Movement Delay). Whole-intersection average delay presented for all other intersections.

c. LOS designations per 2010 Highway Capacity Manual. Similar to the delay values, LOS for Side-Street Stop-Controlled intersections is presented as: Whole-intersection Average LOS (Worst Approach or Worst Movement LOS). Whole-intersection average LOS presented for all other intersections.

d. Locations screened out of the weekend peak hour intersection analysis based on intersection total entering volumes. The weekday analysis provides an estimate of weekend conditions.

e. The Pratt Avenue Napa River Bridge is closed due to storm damage from the winter of 2016-17. Funding to correct the damage is in place, and Pratt Avenue is anticipated to be open by 2040.

Bold represents unacceptable operations. Based on the City's existing LOS standards, unacceptable operations are defined as LOS D, E or F, except at signalized intersection on Main Street where LOS D is acceptable

Source: Fehr & Peers, 2018

As shown in Table 3.13-3, six of the 27 intersections have an existing peak hour LOS that exceeds the City's current LOS standards. Four of the intersections are on SR-29 (Main Street), one is on Pope Street, and one is on the Silverado Trail. With the exception of Main Street/Pope Street-Mitchell Drive, existing LOS deficiencies occur at side-street stop-controlled intersections. The deficient operations at these stop-controlled intersections are due to excessive delays and long queues for the side-street stop-controlled traffic. The delays and queues are attributed to heavy through movements along SR-29, Pope Street, and Silverado Trail, and the lack of "gaps" in the vehicle stream available for vehicles to proceed through these unsignalized intersections. LOS F conditions at Main Street/Pope Street-Mitchell Drive result from high vehicle volumes and a lack of intersection capacity associated with special signal operations that account for the offset Pope Street and Mitchell Drive approaches. The Main Street/Pope Street-Mitchell Drive intersection was observed to be the primary bottleneck intersection in the City.

Existing Vehicle-Miles Traveled

The existing vehicle miles of travel (VMT) generated by uses in the Planning Area (City of St. Helena plus the three defined study areas) is presented in Table 3.13-4, which reflects two

accounting methods: 1) shared accounting, where the responsibility of IX or XI[2] trips is shared with the other jurisdictions (such as the County of Napa, City of Napa, City of American Canyon, etc.) and the IX and XI trip lengths are halved; and 2) total accounting, with the full length of trips presented.

Table 3.13-4: Existing Vehicle-Miles of Travel (VMT) in Planning Area[a]

	Base Year[b]	
Model Households	2,970	
Model Population	7,460	
Model Employment	8,734	
VMT	*Shared Accounting*	*Total Accounting*
Total Planning Area Daily VMT	299,700	425,000
Total Planning Area Daily VMT ÷ Households	77.34	143.10
Total Planning Area Daily VMT ÷ Service Population[c]	14.18	26.24

Notes:

a. The Planning Area includes the city limits, SOI, and three defined study areas.

b. Base year data used in the transportation analysis is from the existing regional travel model. Base Year model is Year 2010, with Planning Area land use data and Napa County-wide transportation system updated for Year 2018 conditions.

c. Service population reflects the sum of residents and jobs.

Source: Fehr & Peers, 2018

As further described in the Regulatory Setting, Senate Bill 743 will require agencies to use VMT per capita as a metric for determining level of impact significance for CEQA transportation analyses. However, the CEQA Guidelines update proposed to implement the requirement notes that it will not take effect until July 1, 2020. Therefore, the existing VMT information in Table 3.13-4 is provided for informational purposes only and will not be used in this EIR's evaluation of transportation impacts resulting from implementation of the Proposed Plan.

Emergency Access

Certain areas of the City of St. Helena have physical impediments to emergency access, including portions of town that have limited entrances via bridges or Main Street. Traffic congestion on Main Street and other city streets can interfere with the Fire Department's response to emergencies, including delaying firefighters responding to the station. The congestion also poses challenges for the City's collaboration with neighboring municipalities and agencies seeking to establish and

[2] IX trip = trip with an origin internal to the Planning Area and a destination external to the Planning Area; XI trip = trip with an origin external to the Planning Area and a destination internal to the planning area

implement regionally coordinated disaster planning for fire, emergency medical, and police services (City of St. Helena, 2017).

Bicycle Circulation

The Caltrans Highway Design Manual (HDM) (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 codify four distinct classifications of bikeways. Bikeways offer various levels of separation from traffic based on traffic volume and speed, among other factors. Bikeway classifications and existing facilities of each type are described below.

- **Class I Bikeway (Bike Path)** paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow of vehicle traffic. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Class II Bike Lanes** provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Class III Bike Routes** provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.
- **Class IV Bikeway (Separated Bikeway)** Separated Bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Guidelines for Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

The existing and planned bicycle network included in the Circulation Element of the Proposed Plan is presented in Figure 3.13-3. Most existing bicycle facilities are Class III bike routes, with the exception of two segments of Class II bike lanes along Starr Avenue and Valley View Street. Class II bike lanes are also provided along Silverado Trail. SR-29 is designated as a Class III bikeway; the shoulder widening constructed as part of the Highway 29 Channelization Project provides additional separation between bicycle traffic and vehicle traffic. Other key bicycle facilities in the Planning Area include Class II bike lanes along Deer Park Road between SR-29 and Silverado Trail.

There are few Class I paths currently in the city. Plans for the County-wide Vine Trail would provide Class I, II, and III segments throughout the community, connecting St Helena to regional destinations throughout the Napa Valley. As outlined in a 2015 project fact sheet from the Napa Valley Transportation Authority (NVTA) website, construction of the Vine Trail segment between Calistoga and St. Helena may begin as early as 2019 (contingent on funding). Other segments of the Vine Trail between St. Helena and Yountville are expected to be constructed as funding becomes available.

Figure 3.13-3

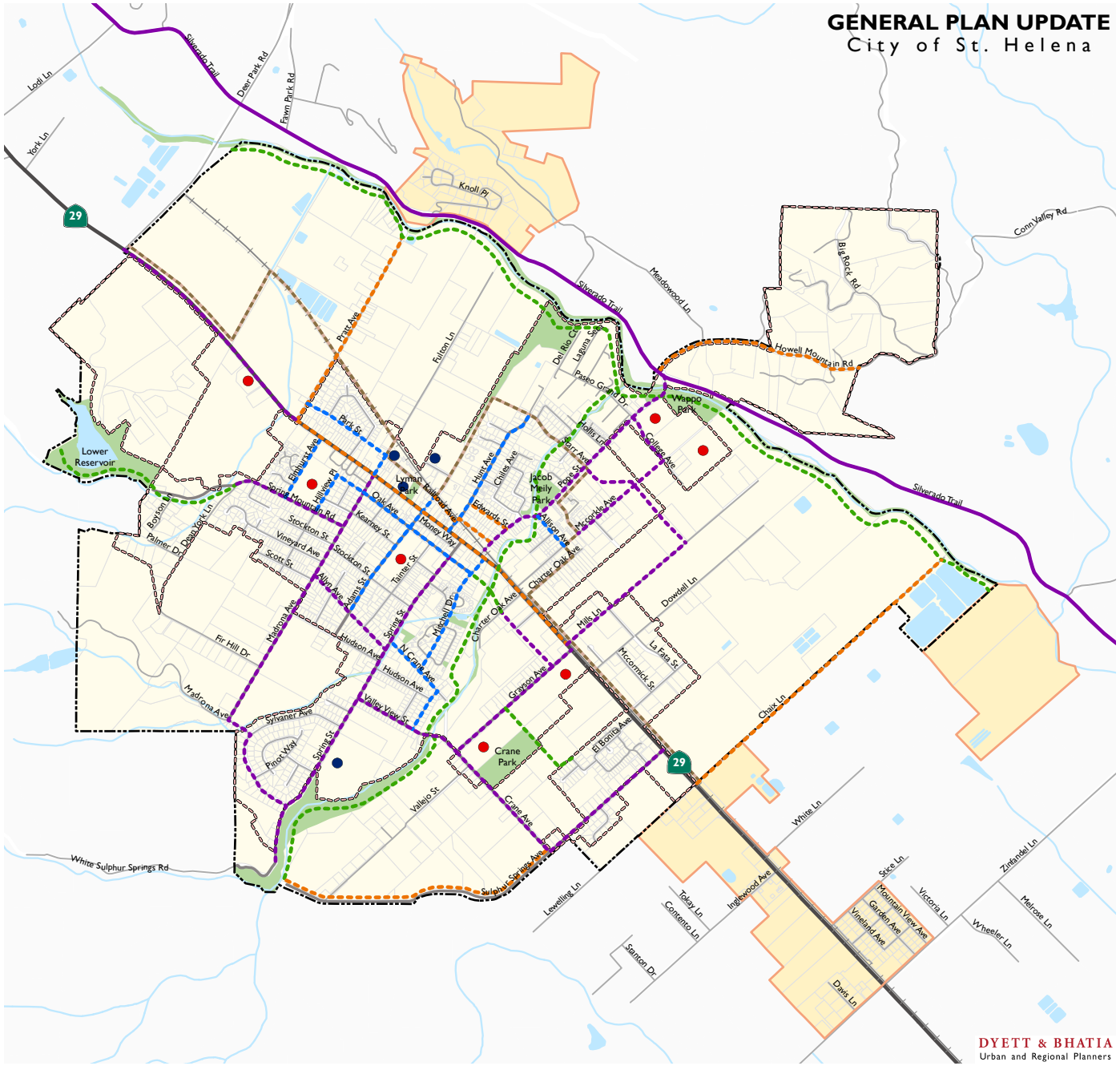
Bicycle Network

Proposed 2030 Network

- Proposed Class I Bicycle Path
- Proposed Class II Bicycle Lane
- Proposed Class III Bicycle Route
- Proposed Bicycle Boulevard
- Proposed Napa Valley Vine Trail*
  *The Vine Trail will include Class I, Class II and Class III segments

Existing Network

- Existing Class II Bicycle Lane**
  ** The existing bike path is a County path.
- School
- Public Facility
- Highway
- Major Roads
- Local Roads
- Railroads
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Pedestrian Circulation

Downtown St. Helena was originally developed with a grid of streets that included a comprehensive network of sidewalks in most parts of the city. The central business district surrounding SR-29 is the city's core pedestrian district. Older neighborhoods surrounding the Downtown core generally have sidewalks that provide pedestrian access between residential areas and schools, community centers, and other walkable destinations. These sidewalks are aging, and maintenance has not kept pace with their deterioration or changing accessibility standards. Significant improvements are needed to maintain and upgrade existing sidewalks throughout the city.

Neighborhoods toward the city's periphery have fewer pedestrian amenities and lack sidewalks in some locations. Areas such as the Dean York neighborhood, and areas adjacent to or outside the Urban Limit Line (ULL) have a rural character where concrete sidewalks (with curb and gutter) may not fit with the context of the neighborhood. The study areas outside of the city limits typically lack pedestrian facilities as the roadway system is of rural character and pedestrian volumes are low.

Public Transit Network

Public transit services are available in all of the cities and in much of the unincorporated area of Napa County. The primary transit service in Napa County is provided by VINE Transit, a fixed-route bus service providing service to and within Calistoga, St. Helena, Napa, American Canyon, Yountville, and parts of unincorporated Napa County.

Development and land use patterns in the Napa Valley have resulted in low rates of transit ridership. According to the 2015 American Community Survey, 1.4 percent of St. Helena residents commute by transit, compared to 5.0 percent statewide.

The Planning Area is served by VINE Route 10, VINE Route 29 and the St. Helena Shuttle. The bus routes through the Planning Area and their operating parameters are as follows:

- **VINE Route 10**. A major intercity route in Napa County, Route 10 provides service between Calistoga and southern Napa (Napa Valley College) every 20 to 60 minutes from 5:00 AM to 11:15 PM on weekdays, about once an hour on Saturdays from 5:50 AM to 8:25 PM, and about once an hour on Sundays between 7:30 AM and 7:30 PM. Within St. Helena, Route 10 runs along SR-29 and makes stops at Pratt Avenue, Elmhurst Avenue, City Hall, Pope Street/Mitchell Drive, Mills Lane, and Dowdell Lane. Route 10 provides transit connections at the Napa Valley College transit center, which provides connections to other VINE routes that serve Napa County and other regional destinations.
- **VINE Route 29**. A major commuter route between Napa County and regional transit connections, Route 29 provides limited-stop service between Calistoga and El Cerrito del Norte BART (via the Vallejo Ferry Terminal). Two morning runs and two afternoon runs are made in both directions on weekdays; the route is not operational on weekends. Additional morning and afternoon runs may be accessed by using VINE Route 10 to access Route 29 at the Napa Valley College transit center in southern Napa. For runs that pass through St. Helena, Route 29 stops at the St. Helena Post Office.

- **St. Helena VINE Shuttle**. The St. Helena Shuttle provides fixed route and on-demand service within the City of St. Helena. One AM fixed route run is provided between 7:50 AM and 8:20 AM on weekdays. One PM fixed route run is provided between 3:15 PM and 4:05 PM on weekdays. At all other times (including the weekend), the shuttle is available for door-to-door service within St. Helena when a reservation is made on the same day of travel.

The above VINE routes and the VINE Shuttle service area are presented on Figure 3.13-4.

Rail Service

The Napa Valley Wine Train is a private tourist rail service that is operated by the Napa Valley Railroad. The Wine Train brings passengers from the City of Napa to the City of St. Helena. Generally, passengers are not allowed to embark or disembark at St. Helena unless booked on a special tour package. The Wine Train rail line runs parallel to SR-29 starting in Napa and passes through the towns of Yountville, Rutherford, and Oakville; the Wine Train runs two train sets per day. As of 2018, no additional stops have been added in St. Helena.

The Wine Train rail line generally parallels Main Street south of Pope Street and diagonally intersects the street grid north of Pope Street. The close proximity of the rail line to Main Street results in increased congestion when train crossing events occur. The rail line also acts as a barrier to east-west travel in the city as the number of public crossing points along the rail line are limited. No commuter or freight rail service exists in St. Helena.

Air Transportation

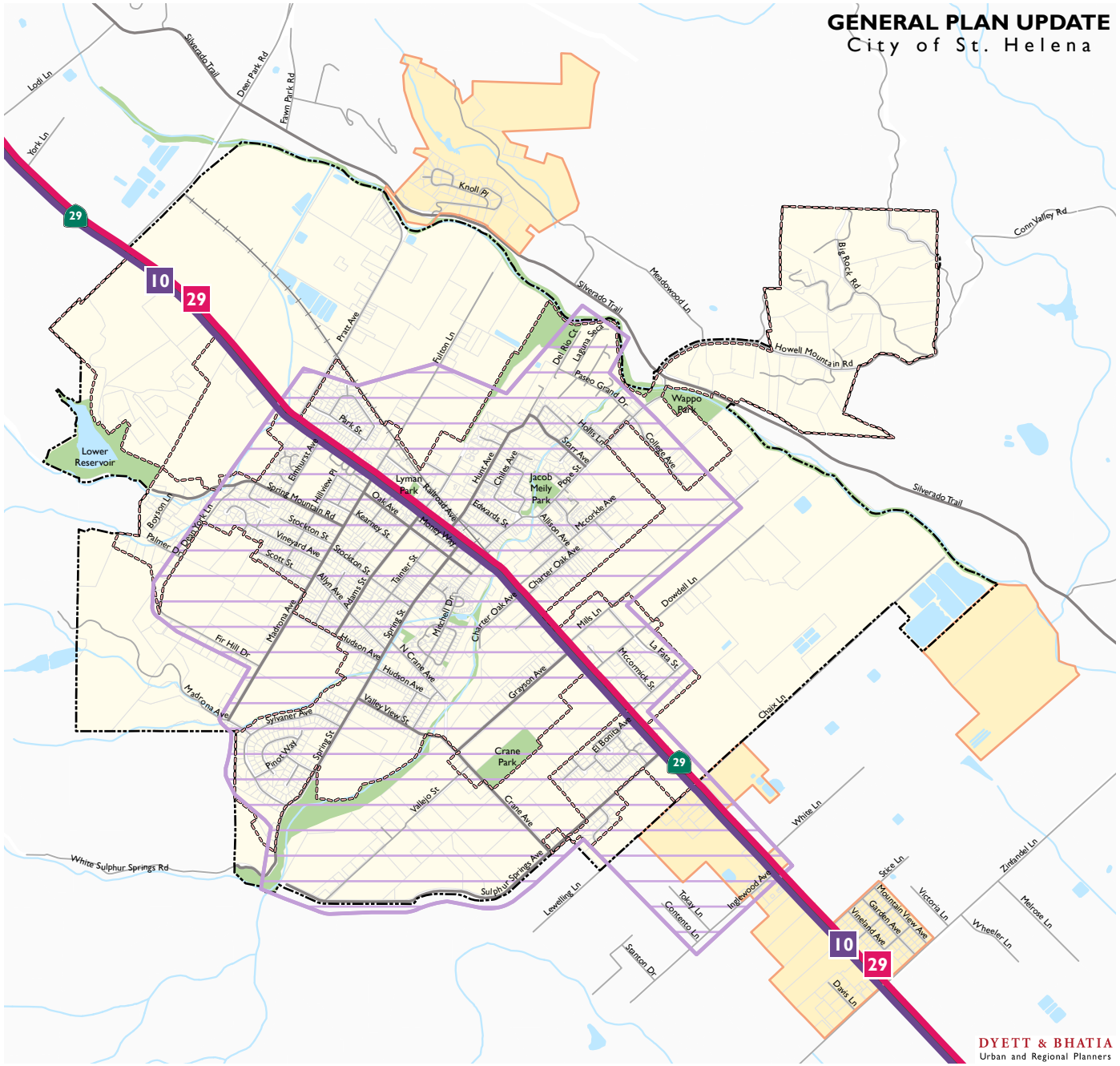
There are no airports in St. Helena. The closest airports are Angwin-Parrett Field, a public use general aviation airport located in Angwin; Napa County Airport, a public general aviation airport located in Napa; and Charles M. Schulz Airport, a public airport with general aviation and scheduled passenger service located in Sonoma County north of Santa Rosa.

Figure 3.13-4

Existing St. Helena Public Transit Services

Public Transit

- Route 10
- Route 29
- St. Helena Shuttle Door-to-Door Service Area
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

REGULATORY SETTING

Federal Regulations

Federal Highway Administration (FHWA)

The Federal Highway Administration (FHWA) provides oversight of the construction, maintenance and preservation of the nation's highways, bridges, and tunnels. FHWA also provides technical assistance to State and local agencies in an effort to improve safety, mobility, and livability, and to encourage innovation. There are no highways or facilities in the City of St. Helena that are under the regulatory control of the FHWA. Caltrans serves as the FHWA agent and maintains authority over SR-29.

Americans with Disabilities Act

Titles I, II, III, and V of the Americans with Disabilities Act (ADA) of 1990 have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in "places of public accommodation" (businesses and non-profit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Appendix A to Part 36 (Standards for Accessible Design) establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility.

Examples of key guidelines include detectable warnings for pedestrians entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travelway, and a vibration-free zone for pedestrians.

Surface Transportation Assistance Act of 1982

Sections 411 and 412 of the Surface Transportation Assistance Act (STAA) of 1982 establishes a National Network of facilities for use by large trucks. The STAA specifies large truck dimensions that must be accommodated on all facilities in the National Network. The National Network includes most interstate freeways and some U.S. and State routes. Facilities not on the National Network may be approved by Caltrans for Terminal Access; that is, STAA dimension-compliant trucks exceeding other Statewide or local truck dimension standards may be granted permission to travel on routes not on the National Network after confirming that the Terminal Access facility can accommodate movement of STAA trucks.

The SR-29 corridor between Calistoga and Vallejo, including Main Street within the City of St. Helena, has been designated as a Terminal Access route by Caltrans.

State Regulations

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. One of its duties is the construction and maintenance of the State highway system. Caltrans has established standards for roadway traffic flow and developed procedures to determine if State-controlled facilities require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before

any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects. Caltrans facilities within the General Plan Update area include the Main Street/SR-29 corridor.

The following Caltrans procedures and directives are relevant to the project, particularly State roadway facilities:

- **Caltrans Project Development Procedures Manual.** This manual outlines pertinent statutory requirements, planning policies, and implementing procedures regarding transportation facilities. It is continually and incrementally updated to reflect changes in policy and procedures. For example, the most recent revision incorporates the Complete Streets policy from Deputy Directive 64-R1, which is detailed below.
- **Caltrans Deputy Directive 64.** This directive requires Caltrans to consider the needs of non-motorized travelers, including pedestrians, bicyclists, and persons with disabilities, in all programming, planning, maintenance, construction, operations, and project development activities and products. This includes incorporation of the best available standards in all of Caltrans' practices.
- **Caltrans Deputy Directive 64-RI.** This directive requires Caltrans to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans supports bicycle, pedestrian, and transit travel with a focus on "complete streets" that begins early in system planning and continues through project construction, maintenance, and operations.
- **Caltrans Director's Policy 22.** This policy establishes support for balancing transportation needs with community goals. Caltrans seeks to involve and integrate community goals in the planning, design, construction, and maintenance and operations processes, including accommodating the needs of bicyclists and pedestrians.
- **Environmental Assessment Review and Comment.** Caltrans, as a responsible agency under the CEQA, is available for early consultation on projects to provide guidance on applicable transportation analysis methodologies or other transportation related issues, and is responsible for reviewing traffic impact studies for errors and omissions pertaining to the State highway facilities. In relation to this role, Caltrans published the Guide for the Preparation of Traffic Impact Studies (December 2002), which establishes the Measures of Effectiveness. The Measures of Effectiveness are used to determine significant impacts on State facilities. The Guide also mandates that traffic analyses include mitigation measures to lessen potential project impacts on State facilities and to meet each project's fair share responsibilities for the impacts. However, the ultimate mitigation measures and their implementations are to be determined based on consultation between Caltrans, the City of Rohnert Park, and the project proponent.

State Transportation Improvement Program (STIP)

The California Transportation Commission (CTC) administers transportation programming, the public decision-making process that sets priorities and funds projects envisioned in long-range

transportation plans. It commits expected revenues over a multi-year period to transportation projects. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State highway system, funded with revenues from the State Highway Account and other funding sources. The California Department of Transportation (Caltrans) manages the operation of State highways, including SR 29 through St. Helena.

Assembly Bill 32 and Senate Bill 375

With the passage of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, the State of California committed itself to reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air Resources Board (CARB) is coordinating the response to comply with AB 32.

In 2007, CARB adopted a list of early action programs that could be put in place by January 1, 2010. In 2008, CARB defined its 1990 baseline level of emissions, and by 2011 it completed its major rule making for reducing GHG emissions. Rules on emissions, as well as market-based mechanisms like the proposed cap and trade program, took effect on January 1, 2012.

On December 11, 2008, CARB adopted its Proposed Scoping Plan for AB 32. This scoping plan included the approval of Senate Bill (SB) 375 as the means for achieving regional transportation-related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32.

SB 375 contains the following major components:

- **Regional GHG Emissions Targets.** SB 375 addresses regional GHG emissions targets. CARB's Regional Targets Advisory Committee will guide the adoption of targets to be met by 2020 and 2040 for each Metropolitan Planning Organization (MPO) in the state. These targets, which MPOs may propose themselves, will be updated every eight years in conjunction with the revision schedule of housing and transportation elements.
- **Sustainable Communities Strategy.** MPOs are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent with each other, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an Alternative Planning Strategy that details an alternative plan to meet the target. The RTP/SCS for the nine-county San Francisco Bay Area region is Plan Bay Area, which is further described in the Metropolitan Transportation Commission subsection below.
- **Coordination of Housing and Transportation Plans.** SB 375 requires that regional housing and transportation plans be synchronized on eight-year schedules. In addition, Regional Housing Needs Assessment (RHNA) allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within three years.
- **Transportation and Air Emissions Modeling.** Finally, MPOs must use transportation and air emissions modeling techniques consistent with guidelines prepared by the CTC.

Regional transportation planning agencies, cities, and counties are encouraged, but not required, to use travel demand models consistent with the CTC guidelines.

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, building on legislative changes from SB 375, AB 32, and AB 1358, described above. SB 743 began the process to modify how impacts on the transportation system are assessed for purposes of CEQA compliance. These changes include the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. SB 743 includes amendments that revise the definition of "infill opportunity zones" to allow cities and counties to opt out of traditional LOS standards established by congestion management programs (CMPs) and require the Office of Planning and Research (OPR) to update the CEQA Guidelines and establish criteria for determining the significance of transportation impacts of projects within transit priority areas.

As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multi-modal transportation networks, and a diversity of land uses."

The Governor's Office of Planning and Research (OPR) has prepared a proposed CEQA Guideline implementing SB 743 and transmitted it to the California Natural Resources Agency for formal adoption. The guidance recommends use of VMT as the CEQA transportation metric, along with the elimination of auto delay (i.e., LOS) for CEQA purposes. If the proposed CEQA Guideline is adopted, all agencies will need to implement the new methodology for determining the significance of transportation impacts in CEQA no later than July 1, 2020. As such, the City will be required to set new thresholds for transportation impacts based on VMT at that time. The California Natural Resources Agency is expected to adopt the new guidelines in late 2018.

Local Regulations

Metropolitan Transportation Commission (MTC)

The majority of federal, State, and local financing available for transportation projects is allocated at the regional level by the MTC, the transportation planning, coordinating, and financing agency for the nine-county Bay Area. MTC prepares the regional transportation plan (RTP), which is a long-range development plan for allocating state and federal transportation funds. The MTC approved the Plan Bay Area in 2017 to guide future regional transportation through the year 2040. The RTP does not include any major regional transportation projects such as changes to SR-29 in St. Helena. Plan Bay Area also serves as the Sustainable Communities Strategy (SCS) document for the nine-county Bay Area region.

Napa Valley Transportation Authority (NVTA)

The Napa Valley Transportation Authority (NVTA), formerly Napa County Transportation and Planning Agency (NCTPA), serves as the Congestion Management Agency (CMA) for the incorporated and unincorporated areas of Napa County. Because the County does not have an adopted congestion management plan (CMP), NVTA works with the Metropolitan Transportation Commission (MTC) to prepare the Napa County portion of the RTP.

In 1999, the NVTA adopted the Napa County Strategic Transportation Plan which the NVTA intended to be a long-range guide for decision-making and funding of Napa County roadways, transit, and bicycle facilities. The plan was updated through the Napa Transportation Future Study (Napa County 2009). In 2015, the NVTA released the updated Transportation Plan, Vision 2040 Moving Napa Forward.

The following goals are included in the Vision 2040 Plan:

- Serve the transportation needs of the entire community, regardless of age, income or ability;
- Improve system safety in order to support all modes and serve all users;
- Use taxpayer dollars efficiently;
- Support Napa County's economic vitality;
- Minimize the energy and other resources required to move people and goods; and
- Prioritize the maintenance and rehabilitation of the existing system.

Facilities that are included in the Strategic Plan include SR-29/128 and the Silverado Trail.

NVTA has also published the Napa Countywide Bicycle Plan (2012, currently undergoing an update) and the Napa Countywide Pedestrian Plan (2016), which provide policy frameworks and implementation plans for enhancing bicycle and pedestrian mobility and safety throughout Napa County.

Local Plans

Bicycle Master Plan

The City currently has a Bicycle Master Plan developed as part of the Napa County Transportation and Planning Agency's countywide Bicycle Master Plan that was adopted in 2012. The countywide Bicycle Master Plan identifies numerous improvements in and near the City of St. Helena. These include but are not limited to installation of a Class II trail along Zinfandel Lane from SR-29 to the Silverado Trail and a Class III trail along Spring Mountain Road from the Napa County Line to the St. Helena City Limit line. The countywide Bicycle Master Plan was adopted in 2012.

Highway 29 Specific Plan

In 2005, the City adopted the Highway 29 Specific Plan. The purpose of the Highway 29 Specific Plan is to guide and support the future development of properties located in the Highway 29 Specific Plan area.

The Highway 29 Specific Plan includes objectives and actions to implement the 1993 City of St. Helena General Plan for properties generally located south of Sulphur Creek, along the east and west sides of South Main Street (SR-29) and north of Grayson Avenue (west side of SR-29) and Dowdell Lane (east side of SR-29). The planning area consists of 108 acres of land. The Circulation concept includes the north-south extension of Oak Avenue between Grayson Avenue and Charter Oak, the relocation and reconstruction of the intersection of Grayson Avenue/Mills Lane and SR-

29 with the addition of a traffic signal at this intersection, the northerly extension of Fountain Street to intersect with Mills Lane, and the widening of Mills Lane through the Specific Plan area. Also proposed in the Specific Plan is a traffic signal installation at the intersection of Dowdell Lane and SR-29.

Napa County General Plan

The Napa County General Plan Circulation Element (2008) outlines objectives, goals, and policies associated with the transportation system in the County's jurisdiction. The Circulation Element notes that the LOS standard for arterial roadways in the unincorporated County is LOS D, except where maintaining the LOS D policy would require the installation of more travel lanes than specified on the County General Plan Circulation Map. The Circulation Element also includes several objectives, goals and policies related to coordinating with Napa County's incorporated cities on multimodal transportation improvements.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit;**

Criterion 2: **Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;**

Criterion 3: **Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;**

Criterion 4: **Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);**

Criterion 5: **Result in inadequate emergency access;**

Criterion 6: **Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities; or**

Based on the City of St. Helena's current transportation impact criteria, transportation impact criteria for Napa County, and the state of the practice for evaluating impacts on the transportation system, the above general significance criteria are interpreted as follows in evaluating the Proposed Plan.

City of St. Helena Intersection Operations Impact Criteria

The City's current LOS standard is LOS D for signalized intersections on SR-29 and LOS C elsewhere (as outlined in Goal A in General Plan Section 5.4). Based on the City's 1993 General Plan LOS standard, Proposed Plan Circulation Element goals, and CEQA impact criteria used in previous project-level CEQA impact analyses,[3] traffic operations impacts are identified as significant if implementation of the Proposed Plan would cause:

- Operations at a signalized intersection along SR-29 to deteriorate from LOS D under existing conditions to LOS E or F under the Proposed Plan, or operations at other signalized intersections to deteriorate from LOS C under existing conditions to LOS D, E, or F under the Proposed Plan;
- The LOS to deteriorate to LOS F for signalized intersections that operate at LOS E under existing conditions;
- The average intersection delay to increase by more than five seconds for signalized intersections that operate at LOS F under existing conditions;
- The LOS to deteriorate to LOS D, E, or F for unsignalized intersections operating at LOS C or better under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume signal warrant criteria for traffic signal installation; or
- Average delay to increase by five or more seconds for unsignalized intersections operating at unacceptable levels (LOS D, E, or F; or LOS E or F on SR-29) under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.

These criteria apply to all intersections analyzed in this document, except for Pratt Avenue/Silverado Trail (Intersection 24), which is under the jurisdiction of Napa County.

Napa County Intersection Operations Impact Criteria

The County's current LOS standard is LOS D for all arterials and signalized intersections, although exceptions are provided for cases where the constructing additional capacity is in conflict with the County General Plan Circulation Map or is physically infeasible. No LOS standard exists for unsignalized intersections, but unsignalized intersections are suggested to be analyzed on a case-by-case basis to determine if signal warrants are met. The decision by the California Court of

[3] Sources include the Revised Draft EIR for the Hunter Subdivision Project (October 2017) and the Initial Study/Mitigated Negative Declaration for the Culinary Institute of America and Greystone (December 2016).

Appeal in *East Sacramento Partnership for a Livable City v. City of Sacramento, et al. (2016)* notes that "compliance with a general plan policy does not conclusively establish there is not a significant environmental impact." Therefore, while unsignalized intersections are exempt from a County LOS policy, this exemption does not relieve the need for the determination of potential impacts to intersection operations at the study intersections.

Based on the County's General Plan LOS standard, CEQA impact criteria used in previous project-level CEQA impact analyses,[4] and the impact criteria used for the City of St. Helena, traffic operations impacts are identified as significant if implementation of the Proposed Plan would cause:

- Operations at a signalized intersection to deteriorate from LOS D under existing conditions to LOS E or F under the Proposed Plan;
- The LOS to deteriorate to LOS F for signalized intersections that operate at LOS E under existing conditions;
- The average intersection delay to increase by more than five seconds for signalized intersections that operate at LOS F under existing conditions;
- The LOS to deteriorate to from LOS D to LOS E or F for unsignalized intersections operating at LOS C or better under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume signal warrant criteria for traffic signal installation; or
- Average delay to increase by five or more seconds for unsignalized intersections operating at unacceptable levels (LOS E or F) under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.

Note that these criteria are generally less stringent than the criteria for the City of St. Helena. These criteria apply only to the intersection of Pratt Avenue/Silverado Trail (Intersection 24), which is under the jurisdiction of Napa County. All other intersections analyzed are subject to the City of St. Helena criteria, discussed in the previous subsection.

Pedestrian Impact Criteria

The City of St. Helena does not have a standardized, quantifiable metric for use in the evaluation of the effectiveness of the pedestrian circulation system. Based on CEQA impact criteria used in previous project-level CEQA impact analyses and typical CEQA impact criteria used in the evaluation of land use plans in the Bay Area, implementation of the Proposed Plan would have a significant impact if it would:

[4] Sources include the Revised Draft EIR for the Hunter Subdivision Project (October 2017) and the Initial Study/Mitigated Negative Declaration for the Culinary Institute of America and Greystone (December 2016).

- Disrupt existing pedestrian facilities;
- Interfere with planned pedestrian facilities;
- Not provide accessible pedestrian facilities that conform to current ADA best practices; or
- Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Bicycle Impact Criteria

The City of St. Helena does not have a standardized, quantifiable metric for use in the evaluation of the effectiveness of the bicycle circulation system. Based on CEQA impact criteria used in previous project-level CEQA impact analyses and typical CEQA impact criteria used in the evaluation of land use plans in the Bay Area, implementation of the Proposed Plan would have a significant impact if it would:

- Disrupt existing bicycle facilities;
- Interfere with planned bicycle facilities;
- Conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards; or
- Not provide secure and safe bicycle parking in adequate proportion to anticipated demand.

Transit Impact Criteria

The City of St. Helena does not have a standardized, quantifiable metric for use in the evaluation of the effectiveness of the public transit system. Based on CEQA impact criteria used in previous project-level CEQA impact analyses and typical CEQA impact criteria used in the evaluation of land use plans in the Bay Area, implementation of the Proposed Plan would have a significant impact if it would:

- Result in a significant increase in transit patronage beyond anticipated capacity; or
- Disrupt existing, or interfere with planned, transit services or facilities.

METHODOLOGY AND ASSUMPTIONS

Quantitative roadway impact analysis was conducted for Year 2040 land uses and transportation improvements described in the Proposed Plan. Impacts are identified based upon a comparison between existing conditions (based on data collected in 2018) and future projections (Year 2040) with Proposed Plan conditions. For purposes of this EIR, Proposed Plan conditions are based on forecasted Year 2040 land uses and transportation improvements described in the Proposed Plan. The transit, bicycle, and pedestrian analysis was limited to a review of the Proposed Plan policy framework and implementation program and a comparison with the identified significance criteria. If a potential inconsistency was discovered, a significant impact was identified.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter

2: Project Description for additional details). Existing conditions related to transportation and traffic in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to transportation and traffic in the study areas. Cumulative impacts related to traffic and transportation are discussed in Chapter 5: CEQA Required Conclusions.

Planned Roadway Improvements

The Proposed Plan carries over several street extensions from the 1993 General Plan to provide new connections and reduce traffic congestion within the city, particularly along SR-29. However, as the implementation of these extensions and connections are subject to further discretionary action by the City Council per Proposed Plan Implementing Action CR1.B, this EIR's analysis of future conditions does not assume that any of the proposed improvements carried from the 1993 General Plan that have not yet been constructed by 2018 (i.e. existing conditions) would be in place by 2040. This is a conservative assumption as conditions without the proposed improvements are projected to result in higher levels of congestion along SR-29 than they would with the proposed improvements; thus, the analysis assuming buildout without the proposed improvements accounts for the greater impacts that would be expected should the proposed improvements not be implemented.

Possible future street extensions are shown in Figure 3.13-5 and are listed below. The updated General Plan specifies that the future roadway extensions are for bike, pedestrian, and emergency vehicle access only. Any roadway improvements beyond this default condition which would permit vehicular traffic (automobile, truck, etc.) requires a traffic analysis, associated environmental review, and that the City Council make certain findings concerning traffic impacts on existing neighborhoods located in close proximity to such an extension. Future roadway extensions include:

- Starr Avenue extension north to Adams Street;
- Starr Avenue, College Avenue, or Allison Avenue extension to Mills Lane;
- Oak Avenue from Charter Oak Avenue to Grayson Avenue;
- Adams Street extension from its current eastern terminus to Starr Avenue; and
- Extension to Silverado Trail, by extending Adams Street or Mills Lane.

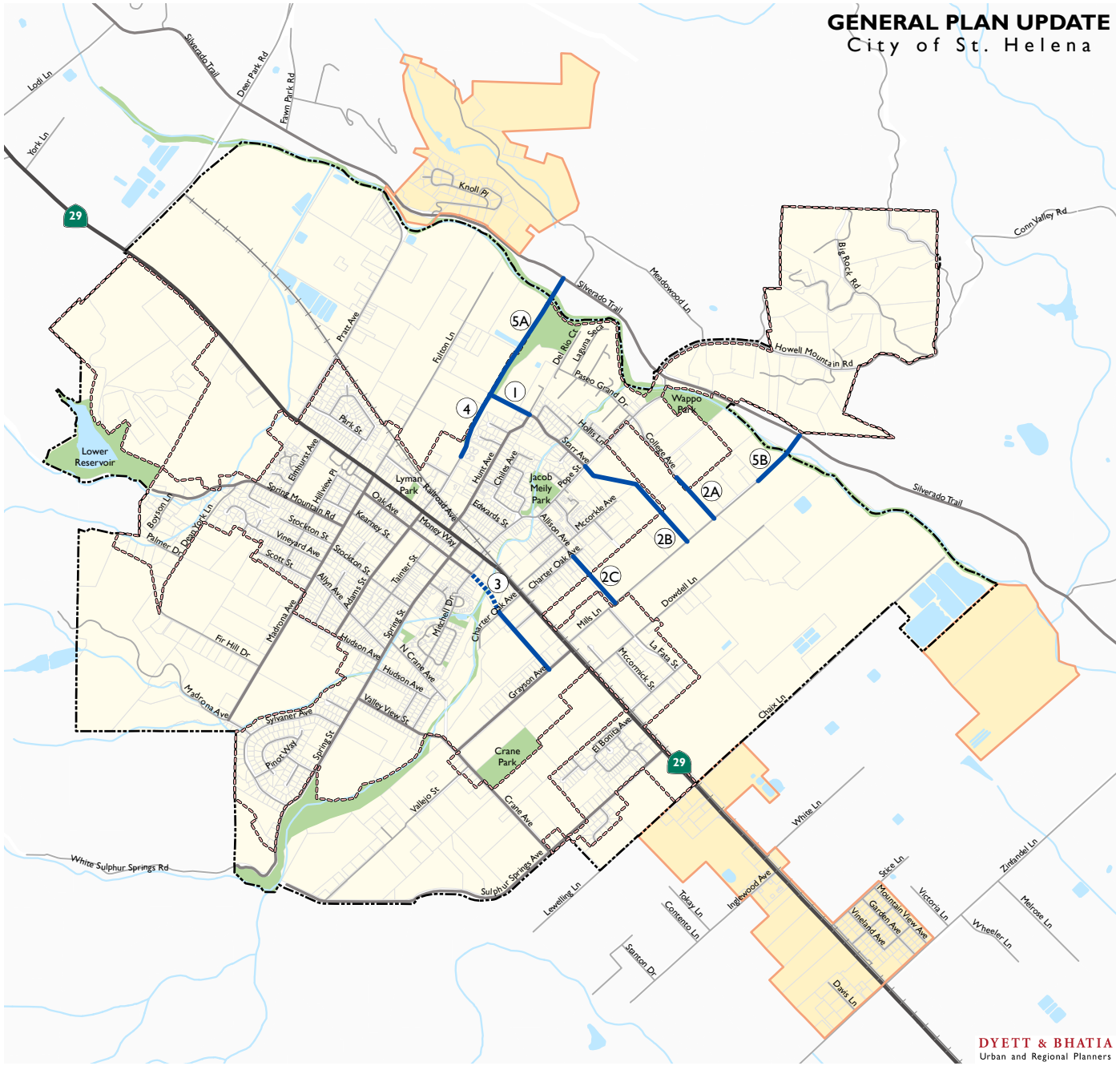
As discussed, since the above roadway extensions would require future study and City Council approval (Proposed Plan Implementing Action CR1.B), the Year 2040 transportation analysis of the Proposed Plan does not include these extensions in the analysis. An inclusion of a particular extension may be considered to alleviate significant intersection impacts (if significant impacts are found).

Figure 3.13-5

Future Roadway Extensions

- Potential Future Roadway for 2035 Plan
- Potential Future Bicycle/ Pedestrian Path for 2035 Plan (with access controls)
- Parks and Open Space
- Urban Limit Line
- Study Areas
- City of St. Helena

- (1) Starr Avenue extension north to Adams Street
- (2A) (2B) (2C) College Avenue, Starr Avenue or Allison Avenue extension to Mills Lane
- (3) Oak Avenue from Charter Oak Avenue to Grayson Avenue with limited access from Mitchell Drive to Charter Oak Avenue
- (4) Adams Street from its current eastern terminus to Starr Avenue
- (5A) (5B) Extension to Silverado Trail, by extending Adams Street or Mills Lane.



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Intersection Operations Analysis

A general trend nationwide has been that increases in trips and trip length proceed at a higher rate than growth in population. This is due in part to changing lifestyles (the prevalence of two-income families and a greater percentage of non-work trips on a day-to-day basis) and increased reliance on private automobiles. St. Helena's roadways currently experience congestion during peak travel periods. Even with substantial increases in the use of non-automobile transportation in the years ahead, automobile travel will likely remain the preferred mode of transportation used for most trips in St. Helena.

Year 2040 traffic volumes were forecast using existing (Year 2018) count data and the four-step Napa-Solano Travel Demand Model. The Base Year version of the model was calibrated and validated to year 2018 traffic volume counts based on validation targets documented in the *Caltrans 2017 Regional Transportation Plan Guidelines Update*; the calibration and validation procedure is a typical process in traffic volume forecasting whereby the model is fine-tuned to replicate observed travel behavior in the study area prior to developing forecasts. After the calibration procedure, the Base Year model met all validation targets for both the weekday AM peak hour and weekday PM peak hour model scenarios. Weekend midday traffic patterns and volumes mimic the weekday PM peak hour scenario, so travel demand model growth data from the PM peak hour model was used to inform the weekend midday traffic volume forecasts.

LOS was forecast at each of the study intersections based on the Year 2040 traffic volume forecasts. Data on local land use changes is based on projections in the Proposed Plan; regional land use growth projections are based on data from Plan Bay Area 2040 (Association of Bay Area Governments and MTC, July 2017). Peak hour LOS for each intersection was forecast for the weekday AM, weekday PM and weekend midday peak hour scenarios. As noted previously, the weekend midday peak hour analysis is for a select set of intersections, generally along the Main Street corridor. The results of the intersection operations analysis are presented in Table 3.13-5.

The California Manual on Uniform Traffic Control Devices (CA-MUTCD) peak hour volume signal warrant (Warrant 3B) was analyzed where unsignalized intersections are projected to operate deficiently in Year 2040 and where a significant impact to intersection operations may exist. As noted in the Significance Criteria subsection, the peak hour volume signal warrant must be satisfied in order to identify a significant impact at an unsignalized intersection. The peak hour volume signal warrant compares traffic volumes approaching the intersection along the major and minor intersection approaches. Generally, as major intersection approach volume increases, the minor intersection approach volume required to meet the warrant decreases.

The signal warrant analysis is intended to examine the general correlation between the current level of development in the region and the need to install new traffic signals. It estimates current traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* and associated California MUTCD guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated by an experienced engineer based on field-measured rather than forecast traffic data and a thorough study of traffic and roadway conditions. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to

certain types of collisions. The appropriate agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants to prioritize and program intersections for signalization.

Table 3.13- 5: Intersection Levels of Service: Existing and Proposed Plan

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
1. Spring Mountain Road/Elmhurst Avenue	SSSC	5.1 (10.7)	A (B)	6.3 (13.1)	A (B)	3.0 (10.5)	A (B)	3.7 (11.8)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
2. Spring Mountain Road/Hillview Place	SSSC	1.9 (10.7)	A (B)	2.8 (12.3)	A (B)	2.4 (10.6)	A (B)	3.1 (11.2)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
3. Spring Mountain Road/Madrona Avenue	SSSC	4.7 (11.8)	A (B)	6.3 (14.7)	A (B)	5.0 (11.7)	A (B)	5.8 (14.3)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
4. Madrona Avenue/Hudson Avenue	SSSC	6.0 (9.0)	A (A)	5.6 (9.6)	A (A)	5.7 (8.7)	A (A)	5.8 (9.1)	A (A)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
5. Spring Street/Valley View Street	SSSC	8.8 (12.9)	A (B)	10.3 (16.8)	B (C)	7.5 (10.8)	A (B)	8.4 (13.5)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
6. Grayson Road/Crane Avenue	AWSC	13.6	B	16.4	C	8.8	A	10.2	B	N/A[d]	N/A[d]	N/A[d]	N/A[d]
7. Sulphur Springs Avenue/Crane Avenue	SSSC	4.5 (10.0)	A (A)	4.9 (10.7)	A (B)	3.8 (9.7)	A (A)	5.1 (11.9)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
8. Main Street/Pratt Avenue	SSSC	1.0 **(34.8)**	A **(D)**	4.3 **(103.3)**[e]	A **(F)**[e]	8.8 **(>120)**	A **(F)**	**34.8 (>120)**	**D (F)**	0.9 (24.4)	A (C)	1.8 **(40.1)**[e]	A **(E)**[e]
9. Main Street/Elmhurst Avenue	SSSC	1.2 **(35.6)**	A **(E)**	2.7 **(70.4)**[e]	A **(F)**[e]	3.0 **(77.3)**	A **(F)**	14.8 **(>120)**	B **(F)**	0.9 **(28.6)**	A **(D)**	1.4 **(37.4)**[e]	A **(E)**[e]
10. Main Street/Madrona Avenue- Fulton Lane	Signal	13.2	B	23.0	C	11.3	B	14.8	B	22.6	C	23.9	C
11. Fulton Lane/Railroad Avenue	SSSC	4.5 (10.1)	A (B)	4.5 (10.6)	A (B)	6.6 (10.4)	A (B)	6.5 (11.5)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
12. Main Street/Adams Street	Signal	23.2	C	30.4	C	21.1	C	24.7	C	37.8	D	40.2	D
13. Adams Street/Railroad Avenue	AWSC	10.0	A	11.0	B	11.2	B	12.0	B	N/A[d]	N/A[d]	N/A[d]	N/A[d]
14. Adams Street/Library Lane	SSSC	2.2 (10.6)	A (B)	2.3 (10.9)	A (B)	4.9 (12.4)	A (B)	5.5 (12.6)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
15. Main Street/Hunt Avenue	SSSC	0.7 (17.1)	A (C)	0.9 (19.1)	A (C)	1.0 (18.5)	A (C)	1.7 (22.7)	A (C)	1.3 (22.8)	A (C)	1.5 **(25.6)**[e]	A **(D)**[e]
16. Hunt Avenue/Railroad Avenue	SSSC	5.5 (14.4)	A (B)	6.2 (16.6)	A (C)	6.8 (14.0)	A (B)	7.6 (16.8)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
17. Mitchell Drive/Oak Avenue	SSSC	5.5 (10.3)	A (B)	5.7 (10.6)	A (B)	5.9 (10.2)	A (B)	5.7 (10.6)	A (B)	5.5 (9.7)	A (A)	5.3 (9.7)	A (A)
18. Main Street/Pope Street- Mitchell Drive	Signal	**>120**	**F**	**>120**	**F**	**111.4**	**F**	**>120**	**F**	**>120**	**F**	**>120**	**F**
19. Main Street/Grayson Avenue	Signal	36.5	D	41.3[f]	D[f]	20.9	C	26.9[f]	C[f]	26.7	C	32.7[f]	C[f]
20. Main Street/Sulphur Springs Avenue	SSSC	1.6 **(26.6)**	A **(D)**	2.1 **(29.9)**	A **(D)**	1.9 **(27.1)**	A **(D)**	3.4 **(41.7)**	A **(E)**	1.1 (22.0)	A (C)	1.2 (23.5)	A (C)
21. Hunt Avenue/Starr Avenue	AWSC	7.6	A	7.9	A	7.4	A	7.7	A	N/A[d]	N/A[d]	N/A[d]	N/A[d]

Table 3.13- 5: Intersection Levels of Service: Existing and Proposed Plan

Intersection	Control	Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Midday Peak Hour			
		Existing Conditions		General Plan Buildout Conditions		Existing Conditions		General Plan Buildout Conditions		Existing Conditions		General Plan Buildout Conditions	
	Type[a]	Delay (sec)[b]	LOS[c]	Delay (sec)[b]	LOS[c]	Delay (sec)[b]	LOS[c]	Delay (sec)[b]	LOS[c]	Delay (sec)[b]	LOS[c]	Delay (sec)[b]	LOS[c]
22. Pope Street/Starr Avenue	SSSC	2.1 (15.4)	A (C)	3.1 (19.0)	A (C)	2.0 (14.1)	A (B)	3.3 (18.4)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
23. Pope Street/Paseo Grande Drive-College Avenue	SSSC	6.0 **(27.1)**	A **(D)**	8.0 **(45.6)**[e]	A **(E)**[e]	2.2 (15.5)	A (C)	2.4 (19.3)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
24. Silverado Trail/Pratt Avenue	SSSC	*Pratt Avenue closed under existing conditions.*[g]		0.9 (23.0)	A (C)	*Pratt Avenue closed under existing conditions.*[g]		1.8 **(39.2)**[e]	A **(E)**[e]	*Pratt Avenue closed under existing conditions.*[g]		N/A[d]	N/A[d]
25. Silverado Trail/Howell Mountain Road	SSSC	0.5 (14.6)	A (B)	0.6 (16.7)	A (C)	0.9 (17.8)	A (C)	0.9 (22.1)	A (C)	0.6 (15.2)	A (C)	0.8 (19.9)	A (C)
26. Silverado Trail/Pope Street	SSSC	5.7 **(33.1)**	A **(D)**	**35.1 (>120)**	**E (F)**	7.0 **(37.1)**	A **(E)**	**28.7 (>120)**	**D (F)**	5.7 **(29.8)**	A **(D)**	**31.0 (>120)**	**D (F)**
27. Main Street/Mills Lane	SSSC	0.1 (14.5)	A (B)	0.1 (14.9)[f]	A (B)[f]	0.2 (14.4)	A (B)	0.5 (15.5)[f]	A (C)[f]	0.2 (21.1)	A (C)	0.2 (13.5)[f]	A (B)[f]

Notes:
a. Signal = Signalized intersection; AWSC = All-Way Stop-Controlled intersection; SSSC = Side-Street Stop-Controlled intersection
b. Side-Street Stop-Controlled intersection delay is presented as: Whole-intersection Average Delay (Worst Approach or Worst Movement Delay). Whole-intersection average delay presented for all other intersections.
c. LOS designations per 2010 Highway Capacity Manual. Similar to the delay values, LOS for Side-Street Stop-Controlled intersections is presented as: Whole-intersection Average LOS (Worst Approach or Worst Movement LOS). Whole-intersection average LOS presented for all other intersections.
d. Locations screened out of the weekend peak hour intersection analysis based on intersection total entering volumes. The weekday analysis provides an estimate of weekend conditions.
e. Location impact less-than-significant as intersection does not satisfy peak hour volume signal warrant. As outlined in the Significance Criteria section, unsignalized intersection volumes must satisfy the CA-MUTCD peak hour volume signal warrant in order to identify an intersection as a significant impact.
f. Location noted as a significant impact due to the effects of queue spillback generated by the Main Street/Pope Street-Mitchell Drive intersection.
g. The Pratt Avenue Napa River Bridge is closed due to storm damage from the winter of 2016-17. Funding to correct the damage is in place, and Pratt Avenue is anticipated to be open by 2040.

Bold represents unacceptable operations. Based on the City's existing LOS standards, unacceptable operations are defined as LOS D, E or F, except at signalized intersection on Main Street where LOS D is acceptable.
Shaded values represent a significant impact.
Source: Fehr & Peers, 2018

RELEVANT POLICIES AND IMPLEMENTING ACTIONS

Land Use and Growth Management Element

- ***LU2.8*** Ensure walkable and accessible neighborhoods through mixed-use development.
- ***LU3.2*** Enhance the pedestrian-oriented character of commercial areas and provide for convenient pedestrian and bicycle connections to encourage walking and reduce vehicle trips within the commercial area.
- ***LU3.3*** Support the redevelopment of auto-oriented commercial areas into pedestrian-friendly commercial uses.
- ***LU3.7*** Provide sufficient auto and bicycle parking in order to serve local businesses in the commercial districts. Ensure that all parking areas are well-designed and that auto parking spaces are hidden from pedestrian view, whenever possible.
- ***LU3.9*** In Mixed-Use, Service Commercial and Central Business districts encourage residential and office uses in upper-story locations or locations along the periphery of the retail district. This will facilitate active and pedestrian-oriented commercial areas.
- ***LU3.10*** Encourage office development within Mixed-Use, Service Commercial and Central Business districts to complement the pedestrian orientation of surrounding development.
- ***LU3.A*** Identify sites in the Central Business and Service Commercial districts for mixed-use development that are close to services and facilitate walking, bicycling, and transit use.
- ***LU4.4*** Ensure access to and from industrial areas that allows for safe and efficient circulation of goods and people.

Economic Sustainability Element

- ***ES2.6*** Expand lodging in the downtown area to encourage walking, biking and alternative transportation modes in order to reduce the need for automobile trips.

Public Health, Safety, and Noise Element

- ***PS4.E*** Require all new development plans to be approved by the Fire Department prior to the issuance of building permits, grading permits or final map approval.
- ***PS4.6*** Ensure that all streets and roads are adequate in terms of width, turning radius, and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress.

Public Facilities and Services Element

- ***PF5.3*** Ensure that children have access to safe routes to school, especially by bicycle and walking.
- ***PF5.B*** Partner with the Napa County Office of Education, the Napa Valley Transportation Authority, the St. Helena Unified School District, and private schools in St. Helena to develop and implement local safe routes to school strategies to improve walking and bicycling access to schools and after-school programs; promote bicycling and

walking to benefit students' health; decrease automobile traffic near schools; and support local efforts to improve the environment. Align safe routes to school strategies with the City's bicycle and pedestrian trail systems.

Circulation Element

- ***CR1.1*** Promote a connected street, bicycle and pedestrian network within the City to provide better internal automobile, bicycle and pedestrian connections for residents.
- ***CR1.2.*** Provide complete streets that balance the diverse needs of users of the public right-of-way, in accordance with the California Complete Streets Act of 2008.
- ***CR1.3.*** Pursue appropriate funding for the development of a balanced transportation system.
- ***CR1.4*** Develop and use, in addition to intersection level of service standards, performance measures that consider all road users to determine transportation impacts of new development.
- ***CR1.5*** Avoid mitigation measures that negatively impact the walking and bicycling environment and encourage driving.
- ***CR1.6*** Continue to support NVTA in the provision of convenient transit, including regional and local service. Support more frequent and reliable transit service between communities to reduce the number of people traveling to or from St. Helena to work by private vehicle. Promote and encourage use of the St. Helena Vine Shuttle.
- ***CR1.7*** Explore the use of the rail corridor to reduce traffic, including working with the new owners of the Wine Train to consider the possibility of developing hospitality and other tourist oriented-uses that are primarily accessed by passengers riding on the Wine Train Corridor.
- ***CR1.8*** Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies:
  - Complete the City's bicycle and pedestrian network, which will increase transportation choices in the city and reduce the demand for vehicle travel;
  - Maximize the overall efficiency of the transportation system, including managing the transportation network through a citywide transportation system management program;
  - Implement "smart growth" and sustainable planning principles as defined in the Land Use and Growth Management Element;
  - Encourage jobs/housing match, as defined in the Housing Element; and
  - Encourage/provide incentives for employee car pools.
- ***CR1.9*** Promote a walking and bicycling environment that is comfortable and convenient. Ensure that all St. Helena streets have no more than a single through-automobile lane in each direction, plus a single left-hand turning lane where appropriate, even if this requirement increases vehicle travel times. Allow exceptions if an extra lane would reduce the possibility of collisions.

- ***CR1.10*** Strive to maintain a ten minute or less travel time during peak periods along State Route 29 and Silverado Trail, from the northern and southern city boundaries.
- ***CR1.11*** Establish a multimodal transportation impact fee program as part of the City's existing transportation impact fee, to finance and implement project mitigations that help achieve the City's traffic reduction goals. As part of the impact fee program, require new development to analyze travel demand and finance and construct all required off-site circulation improvements, including proposed road extensions, necessary to mitigate project impacts and to reduce the severity of cumulative transportation impacts to all modes of travel.
- ***CR1.A*** Use the street typologies as defined in the Circulation Element as a basis for improving and managing streets. Improve vehicle, pedestrian and bicycle facilities on streets based on this system.
- ***CR1.B*** Evaluate the following new connections to promote increased bicycle, pedestrian and non-automobile based transportation, consistent with the requirement for the preparation of a "Special Study," as described in the Circulation Element. Where feasible, preserve existing rights-of-way.
  - Starr Avenue extension north to Adams Street
  - Consider three options for a connection to Mills Lane: a) Starr Avenue extension to Mills Lane; b) College Avenue extension to Mills Lane; or c) Allison Avenue extension to Mills Lane
  - Oak Avenue from Charter Oak Avenue to Grayson Avenue and limited access from Mitchell Drive to Charter Oak Avenue
  - Adams Street from its current eastern terminus to Starr Avenue
  - Consider two options to connect downtown St. Helena to Silverado Trail: a) Adams Street extension to Silverado Trail; b) Mills Lane extension to Silverado Trail
- ***CR1.C*** Identify streets that should become "more complete," through consideration of transit priorities, sidewalk gap closures, new bikeways and vehicle traffic calming measures.
- ***CR1.D*** Adopt and implement transportation performance measures that promote an efficient transportation system from the perspective of all users. These performance measures shall supplement the City's traditional automobile Level of Service (LOS) thresholds with the goal of improving multimodal circulation and managing traffic congestion in St. Helena.
- ***CR1.E*** Support efforts to secure additional funding for regional transit service to St. Helena for residents, workers, and visitors as a viable alternative to travel by private automobile. Focus on improving the bus service for use by commuters.
- ***CR1.F*** Subject all rail corridor uses to use permit review; locate passenger facilities within zoning districts which minimize impacts to established and proposed land uses.
- ***CR1.G*** Study the potential for integrating Wine Train activities with car-free tourism strategies to provide an alternative for tourists to visit St. Helena without a car.

- ***CR1.H*** Measure total automobile trips generated by new developments on a per project basis, to reduce vehicle trips. Maintain a citywide trip generation analysis methodology that evaluates the effects of land use and built environment changes on travel choices and behavior.
- ***CR1.I*** Evaluate changes to vehicle travel times along State Route 29 on a per-development or per-project basis. Establish significance criteria for determining if an increase in travel time resulting from new development is significant.
- ***CR1.J*** As new land use development and redevelopment occurs, require the provision of links to existing streets, street right-of-way dedications, and improvements to the local roadway network (including pedestrian, transit, bicycle, and other non-motorized vehicle improvements), consistent with adopted Engineering Standards, public safety standards, and the St. Helena Bicycle Plan. Additionally, in the case of subdivisions, require the provision of sidewalks on all local streets within the development.
- ***CR1.K*** Adopt and implement a citywide, Multimodal Transportation Mitigation Fee program to provide funding on a fair share bases for transportation improvements that reduce citywide automobile trips and contribute to the provision of a continuous path of travel for walking and bicycling from the development site to the center of downtown and other key destinations. Such transportation improvements include completing the bicycle and pedestrian network, implementing transportation demand and systems management strategies, and improving traffic signal coordination on State Route 29. Ensure that fees take into consideration the contribution of new development to changes in net new automobile trips and change in travel time along State Route 29.
- ***CR1.L*** Continue to work with Caltrans to ensure regional coordination and manage congestion on State Route 29.
- ***CR2.1*** Create a comprehensive bicycle and pedestrian network that enhances neighborhood connectivity. Develop the system as shown in Figure 5.3 to expand and improve the pedestrian and bikeway system.
- ***CR2.2*** Promote walking and bicycling as safe and convenient modes of transportation.
- ***CR2.3*** Ensure secure, accessible and convenient bicycle parking facilities throughout St. Helena, including downtown, commercial areas, schools and parks.
- ***CR2.4*** Preserve and enhance pedestrian connectivity and safety throughout St. Helena.
- ***CR2.5*** Improve the pedestrian experience through streetscape enhancements, focusing improvements where there is the greatest need, and by orienting development toward the street.
- ***CR2.6*** Encourage walking and bicycling trips to St. Helena schools.
- ***CR2.B*** Develop guidelines for the design, construction and maintenance of bicycle and pedestrian paths in St. Helena. Coordinate the guidelines with Napa County or regional trail connections.
- ***CR2.C*** Require any new development and modifications to existing projects to provide bicycle and pedestrian improvements and amenities, consistent with adopted Engineering Standards and the St. Helena Bicycle Plan.

- ***CR2.D*** Identify and pursue funding opportunities for bicycle projects on the local, state and federal levels. Update the existing and proposed bicycle system as required by Caltrans to qualify for Bicycle Transportation Account funds.
- ***CR2.E*** Allocate funds and/or identify funding sources for pedestrian and streetscape improvements.
- ***CR2.F*** Improve street crossings and gaps in the sidewalk system through development review and capital improvement projects.
- ***CR2.G*** Adopt a crosswalk installation policy to promote pedestrian safety and accessibility.
- ***CR2.H*** Review pedestrian/bicycle-vehicle collision data on an annual basis and identify areas for pedestrian safety improvements.
- ***CR2.I*** Pursue state and federal grant opportunities to fund a Safe Routes to School program and other bike/pedestrian programs.
- ***CR2.J*** Consider the feasibility of a citywide bike sharing program for municipal and/or public use.
- ***CR2.K*** Require safe and accessible bicycle and pedestrian access for all newly-developed public facilities.
- ***CR2.L*** Enhance the pedestrian environment within the commercial area, and support the development of bicycle trails throughout St. Helena with the goal of connecting to a countywide system. Encourage the use of group transit options in order to decrease tourist-generated traffic congestion. Encourage the use of pedi-buses by the school district to guide children safely and in a more healthful and sustainable manner to school.
- ***CR3.1*** Provide incentives and encourage existing major employers to develop and implement transportation demand management (TDM) programs to increase the number of people who bike, and walk, and take transit to work and reduce peak-period trip generation. Strategies include the following:
  - Transit subsidies or reimbursement to residents and employees (often referred to as "commuter check" or "EcoPass");
  - Car-share, car-pooling and neighborhood electric vehicle programs, to reduce the need to have a car or second car;
  - Integrated bicycle parking and support facilities, primarily to reduce trips within the city;
  - Modified parking codes to manage the supply of parking that generates frequent turn-over and serves multiple users; and
  - Marketing and information programs to encourage alternative transportation modes.
- ***CR3.2*** Support the implementation of NVTA goals to reduce/restrain growth of automobile vehicle miles traveled (VMT).

- ***CR3.3*** Shift travel from single-occupancy vehicles to other modes so that by 2040, 45 percent of work trips by St. Helena residents and workers are by carpool, transit, walking or bicycling.
- ***CR3.4*** Work with the wine and hospitality industries to manage congestion and create and promote car-free tourism services.
- ***CR3.5*** Work with the school district to increase the use of carpooling and the bus system to reduce drive-alone trips to St. Helena schools.
- ***CR3.6*** Support development of the bikeway and pedestrian networks to provide a convenient opportunity for at least 20 percent of commuters to get to work by walking or bicycling.
- ***CR3.7*** Support compact, mixed-use development as outlined in the Land Use and Growth Management and Housing elements.
- ***CR3.A*** Study the feasibility of a citywide TDM program and review the effectiveness of the existing Traffic Impact Mitigation Fee.
- ***CR3.B*** If deemed feasible, as part of the municipal code, require TDM measures for all new non-residential development.
- ***CR3.C*** Regularly monitor progress toward increasing the number of residents and workers walking, biking and using public transit.
- ***CR3.D*** Work with the wine and hospitality industries, including the Wine Train, to manage congestion and create and promote car-free tourism services.
- ***CR4.1*** Ensure adequate maintenance of transportation facilities such as streets, sidewalks and multi-use paths. Emphasize safety considerations, impacts on non-automobile modes of travel and overall impact on long-term resource needs as maintenance priorities.
- ***CR4.2*** Ensure safety on residential neighborhood streets to promote walking and bicycling and preserve neighborhood livability.
- ***CR4.3*** Continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas.
- ***CR4.4*** Strive to bring all pedestrian facilities into compliance with Americans with Disabilities Act (ADA) specifications.
- ***CR4.5*** Improve traffic safety and encourage walking and bicycling trips to St. Helena schools through a Safe Routes to School program.
- ***CR4.A*** Review and update the Capital Improvement Program on a regular basis to identify and prioritize circulation facility improvements. Ensure that improvements support the goals, policies and implementing actions identified in the General Plan.
- ***CR4.B*** Develop strategies to calm traffic on streets that experience speeding or cut-through traffic, such as Starr Avenue. Include a range of solutions including enforcement, engineering and education efforts to calm vehicle traffic.

- ***CR4.C*** Establish a transition plan that identifies prioritization and funding mechanisms for improving street conditions to meet ADA specifications. Transition plans are an important part of meeting ADA standards.
- ***CR4.D*** Pursue Safe Routes to School grants to improve safety and encourage bicycling and walking trips to St. Helena schools.
- ***CR4.E*** To reduce the effect of regional traffic on local streets, monitor traffic volumes and speeds on potential regional cut-through routes, including Oak Avenue and Valley View Street and other problematic streets like Spring, Pope, Starr, etc. Due to the forecast potential for traffic volumes to increase on Oak Avenue and Valley View Street, the City shall consider installing traffic calming or traffic diverting devices to discourage regional cut-through traffic with the goal of ensuring that, over the duration of the General Plan, traffic volumes on these streets do not increase significantly.
- ***CR4.F*** To ensure the multimodal Transportation Mitigation Fee (TMF) program serves as acceptable mitigation for the increase in traffic volumes resulting from build out of the General Plan, the City shall explore TMF programs within 6 months of adoption of the General Plan Update. As part of this effort, the City shall conduct a fee study to ascertain whether the fees designated under the existing fee program should be revised. As part of the fee study development, the City should consult with other local agencies, including Caltrans and the California Public Utilities Commission (CPUC), to identify potential improvements to State Route 29 beyond those currently under construction, and to at-grade railroad crossings that could be incorporated into the TMF program.
- ***CR4.G*** The City shall consider the use of signal preemption for emergency response or evacuation in locations where Police and Fire Departments response times are not met.
- ***CR4.H*** Connect Vallejo Street to Sulphur Springs Avenue with a fully paved street connection meeting the City's established Street Standards.
- ***CR5.1*** Ensure an adequate balance of parking demand and supply. Closely manage and track parking supply within the downtown area by developing a parking management program and implementing a "park-once" strategy.
- ***CR5.2*** Maintain on-street parking and/or parklet on Main Street in the Central Business District for the convenience of shoppers and to provide a physical and psychological buffer between Main Street traffic and pedestrians.
- ***CR5.A*** Develop a "park-once" strategy for visitors to improve air quality, reduce congestion, promote alternatives to driving alone, and educate and involve businesses and residents. Work with employers to encourage employees to park on the fringes of downtown, thereby leaving convenient parking spaces open for shoppers.
- ***CR6.1*** Prioritize and implement improvements to the circulation system, with an emphasis on bicycle and pedestrian improvements and expanded transit service.
- ***CR6.2*** Require concurrent infrastructure development for any new development projects that have impacts on the circulation system, including streets, paths, trails, sidewalks and public transit.
- ***CR6.3*** Consider requiring dedications and mitigations in addition to traffic mitigation fees for any development that occurs adjacent to proposed street corridors in order to

reinforce circulation system continuity. Traffic mitigation fees are necessary to mitigate existing traffic congestion and congestion caused by new development. Consider revising fee schedules to fund needed vehicular, bike, and pedestrian improvements in order to appropriately mitigate impacts. The fee schedule must be based on an established "nexus" between new development and the planned improvements.

- ***CR6.A*** Evaluate and prioritize all new paths and trails (identified in Section E: St. Helena's Circulation and Mobility Future) when adequate funding is secured and concurrent with any new, adjacent developments.
- ***CR6.B*** Keep up to date the existing St. Helena Traffic Mitigation Fee program to provide funding for all new road connections and trails included in the Circulation Element, in order to ensure new connections and trails are constructed in a timely manner.

IMPACTS

Impact 3.13-1 Implementation of the Proposed Plan could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. (Significant and Unavoidable)

Intersection Traffic Operations

Intersection operations impacts are identified as significant if implementation of the Proposed Plan would cause the following to occur at intersections located in the City of St. Helena:

- Operations at a signalized intersection along SR-29 to deteriorate from LOS D under existing conditions to LOS E or F under the Proposed Plan, or operations at other signalized intersections to deteriorate from LOS C under existing conditions to LOS D, E, or F under the Proposed Plan;
- The LOS to deteriorate to LOS F for signalized intersections that operate at LOS E under existing conditions;
- The average intersection delay to increase by more than five seconds for signalized intersections that operate at LOS F under existing conditions;
- The LOS to deteriorate to LOS D, E, or F for unsignalized intersections operating at LOS C or better under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation; or
- Average delay to increase by five or more seconds for unsignalized intersections operating at unacceptable levels (LOS D, E, or F; or LOS E or F on SR-29) under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.

Intersection operations impacts are identified as significant if implementation of the Proposed Plan would cause the following to occur at intersections located in Napa County:

- Operations at a signalized intersection to deteriorate from LOS D under existing conditions to LOS E or F under the Proposed Plan;
- The LOS to deteriorate to LOS F for signalized intersections that operate at LOS E under existing conditions;
- The average intersection delay to increase by more than five seconds for signalized intersections that operate at LOS F under existing conditions;
- The LOS to deteriorate to from LOS D to LOS E or F for unsignalized intersections operating at LOS C or better under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume signal warrant criteria for traffic signal installation; or
- Average delay to increase by five or more seconds for unsignalized intersections operating at unacceptable levels (LOS E or F) under existing conditions, and the future forecasted traffic volumes would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.

As noted previously, the only intersection out of the 27 that is analyzed under the Napa County criteria is the intersection of Pratt Avenue/Silverado Trail (Intersection 24). All other intersections are analyzed under the City of St. Helena criteria.

Table 3-13.5 presents the year 2040 LOS at the 27 intersections studied as part of the analysis under Proposed Plan Buildout. Significant impacts are identified at seven intersections, as follows:

- Intersection 8 - Main Street/Pratt Avenue: Weekday PM peak hour intersection operations would remain at LOS F and the weekday PM peak hour delay would increase by more than five seconds. The Peak Hour Signal Warrant is met at this location for the weekday PM peak hour.
- Intersection 9 - Main Street/Elmhurst Avenue: Weekday PM peak hour intersection operations would remain at LOS F and the weekday PM peak hour delay would increase by more than five seconds. The Peak Hour Signal Warrant is met at this location for the weekday PM peak hour.
- Intersection 18 - Main Street/Pope Street-Mitchell Drive: Weekday AM peak hour, weekday PM peak hour, and weekend midday peak hour intersection operations would remain at LOS F and the delay would increase by more than five seconds for each peak hour studied.
- Intersection 19 - Main Street/Grayson Avenue: While this intersection is projected to operate acceptably per the intersection operations analysis, the results of the Main Street/Pope Street-Mitchell Drive analysis indicate that queues from the Main Street/Pope Street-Mitchell Drive intersection would regularly impede northbound Main Street traffic flow at Main Street/Grayson Avenue. Vehicles making an eastbound left turn from Grayson Avenue to northbound Main Street may need to wait multiple cycles to complete a left turn if there is no room to complete the turn. Therefore, this intersection has been noted as a significant impact.

- Intersection 20 - Main Street/Sulphur Springs Avenue: Weekday PM peak hour intersection operations would deteriorate from an existing LOS D to a projected LOS E, and the weekday PM peak hour delay would increase by more than five seconds. The Peak Hour Signal Warrant is met at this location for the weekday PM peak hour.
- Intersection 26 - Silverado Trail/Pope Street: Weekday AM peak hour, weekday PM peak hour, and weekend midday peak hour intersection operations would remain at LOS F and the delay would increase by more than five seconds for each peak hour studied. The Peak Hour Signal Warrant is met at this location for all of the indicated peak hours studied.
- Intersection 27 - Main Street/Mills Lane: While this intersection is projected to operate acceptably per the intersection operations analysis, the results of the Main Street/Pope Street-Mitchell Drive analysis indicate that queues from the Main Street/Pope Street-Mitchell Drive intersection would regularly impede northbound Main Street traffic flow at Main Street/Mills Lane. Vehicles making a westbound right turn from Mills Lane to northbound Main Street may need to wait for long times for gaps in traffic to open to complete the turn. A similar situation may occur for vehicles making a southbound left turn from Main Street to Mills Lane Therefore, this intersection has been noted as a significant impact.

The Proposed Plan includes multiple policies and implementing actions that would seek to minimize congestion on the transportation network through a series of efforts to reduce single occupancy vehicle trips, improve circulation throughout St. Helena, and promote walking, bicycling and transit trips as viable transportation options, including policies LU3.2, LU3.3, LU4.4, ES2.6, PF5.B, CR1.1, CR1.2, CR1.3, CR1.4, CR1.6, CR1.7, CR1.10, CR1.11, CR1.A, CR1.B, CR1.D, CR1.E, CR1.G, CR1.H, CR1.I, CR1.K, CR1.L, CR3.1, CR3.3, CR3.4, CR3.5, CR3.A, CR3.B, CR3.C, CR3.D, CR4.A, CR5.1, CR5.A, CR6.1, CR6.2, CR6.3, and CR6.B.

The Proposed Plan contains multiple implementing actions that identify mechanisms for funding actions designed to alleviate transportation impacts resulting from new development under the Proposed Plan. Specifically, Implementing Actions CR1.H and CR1.K provide for the development of a methodology to measure automobile trips generated (ATG) by new development projects, and the adoption of a citywide, multi-modal Transportation Mitigation Fee program. While the City already has a traffic impact fee program in place, the proposed multi-modal fee program would seek to provide transportation improvements that offset the increase in vehicle trips resulting from new development. The Transportation Mitigation Fee program would determine how many peak hour trips could be mitigated by the strategy of completing the City's bicycle and pedestrian network, employing a citywide transportation demand management program and implementing other automobile trip reduction measures. Nevertheless, even with Proposed Plan policies and implementing actions, impacts at the above stated intersections would be significant.

Significance Before Mitigation: Significant

Mitigation Measures

The following specific mitigation measures have been developed to alleviate the significant impacts noted above. With the exception of the Silverado Trail/Pope Street intersection, these mitigation

measures would require approval by Caltrans and/or further action by the City Council prior to implementation of the mitigation measure.

TR-1: Main Street/Pratt Avenue: Install a traffic signal at the intersection.

TR-2: Main Street/Elmhurst Avenue: Restripe the intersection to include the following:

- Northbound approach: 1 left turn lane, 1 though lane
- Southbound approach: 1 two-way left turn lane, 1 through-right turn shared lane
- Eastbound approach: 1 left turn lane, 1 right turn lane

TR-3: Main Street/Pope Street-Mitchell Drive: Construct one or more of the planned roadway extensions noted in General Plan Figure 5.2. Note that, per the General Plan, additional study of the connection(s) would be required, and the City Council would need to approve the connection at that time. Candidate extensions that may directly reduce the impacts at Main Street/Pope Street-Mitchell Drive include:

- Connection 2A: College Avenue extension to Mills Lane (may require realignment of Mills Lane to meet Main Street/Grayson Avenue intersection)
- Connection 3: Oak Avenue extension from Mitchell Drive to Grayson Avenue
- Connection 2B, Connection 2C, Connection 5B, or a combination of Connections 1, 4 and 5A may provide congestion relief to Main Street/Pope Street-Mitchell Drive, but these improvements have additional considerations related to neighborhood traffic volumes and costs related to crossings of the Napa River.

TR-4: Main Street/Sulphur Springs Avenue: Install a traffic signal at the intersection.

TR-5: Silverado Trail/Pope Street: Install a traffic signal at the intersection. The nearby intersection of Silverado Trail/Howell Mountain Road may require signalization as well because the two intersections are closely spaced.

TR-6: Main Street/Grayson Avenue and Main Street/Mills Lane: Realign Mills Lane to form a four approach to the existing Main Street/Grayson Avenue intersection.

Significance After Mitigation: Significant and unavoidable. As Main Street is a State highway (SR-29), mitigation measures along Main Street are subject to Caltrans approval, and thus the construction of the mitigation measures cannot be guaranteed by the City. Additionally, the mitigation measures along Main Street and Silverado Trail may be considered infeasible due to lack of funds to design and construct adequate improvements to accommodate future traffic volumes or due to lack of sufficient right-of-way to construct needed improvements. Since the City cannot guarantee that the needed improvements will be implemented, the impact is deemed significant and unavoidable.

Vehicle-Miles of Travel

VMT is not currently a CEQA metric used by the City of St. Helena to evaluate the transportation impacts of proposed development; and the following analysis was conducted for informational purposes only.

The Napa-Solano Travel Demand Model was used to estimate the VMT generated by land uses in the Planning Area after implementation of the Proposed Plan. To assess the VMT generated by St. Helena, an origin-destination (OD) method was used which tracks all vehicular trips generated by land uses in the Planning Area across the entire regional network. Four types of trips are isolated:

- **Internal-Internal (II) trips.** Include all trips that begin and end within the Planning Area.
- **Internal-External (IX) trips.** Include all trips that begin in within the Planning Area and end outside the Planning Area.
- **External-Internal (XI) trips.** Include all trips that begin outside the Planning Area and end inside the Planning Area.
- **External-External (XX) trips.** Trips that begin and end outside the Planning Area are not included. The City of St. Helena assumes no responsibility for External-External trip type VMTs.

Two separate accounting methods were used. The first shares the responsibility of IX or IX trips with the other jurisdiction with IX and XI trip lengths halved. The second method uses the full length of IX and IX trips. Results are presented in Table 3.13-6: Vehicle Miles of Travel Summary in the Planning Area.

Table 3.13-6: Vehicle-Miles of Travel (VMT) in Planning Area[a]

	Base Year[b]		*Year 2040 with Proposed Plan*	
Model Households	2,970		3,388	
Model Population	7,460		8,603	
Model Employment	8,734		10,772	
VMT	*Shared Accounting*	*Total Accounting*	*Shared Accounting*	*Total Accounting*
Total Planning Area Daily VMT	229,700	425,000	304,400	558,500
Total Planning Area Daily VMT ÷ Households	77.34	143.10	89.85	164.85
Total Planning Area Daily VMT ÷ Service Population[c]	14.18	26.24	15.71	28.83

Notes:

a. The Planning Area includes the city limits, SOI, and three defined study areas.

b. Base year data used in the transportation analysis is from the existing regional travel model. Base Year model is Year 2010, with Planning Area land use data and Napa County-wide transportation system updated for Year 2018 conditions.

c. Service population reflects the sum of residents and jobs.

Source: Fehr & Peers, 2018

As shown in Table 3.13-6, VMT would be expected to increase under the Proposed Plan. Part of the increase is associated with the addition of more employment and retail opportunities within the city that could have the potential to import vehicle trips from the surrounding communities. However, the model does not fully capture the potential for some existing and future trips to shift to alternative travel modes as the bicycle, pedestrian, and transit systems are enhanced, so actual VMT may be somewhat lower than the model predicts as this mode shift occurs over time.

The Proposed Plan includes policies that would reduce VMT generation on a per capita basis. This would, in turn, reduce VMT-related impacts. The policies include LU2.8, LU3.2, LU3.3, LU3.9, LU3.10, LU3.A, ES2.6, PF5.3, PF5.B, CR1.1, CR1.2, CR1.3, CR1.4, CR1.5, CR1.6, CR1.7, CR1.8, CR1.9, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.J, CR1.K, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CF2.A, CR2.B, CR2.C, CR2.D, CR2.E, CR2.F, CR2.G, CR2.J, CR2.K, CR2.L, CR3.1, CR3.2, CR3.3, CR3.4, CR3.5, CR3.6, CR3.7, CR3.A, CR3.B, CR3.C, CR3.D, CR4.1, CR4.2, CR4.3, CR4.4, CR4.5, CR4.A, CR4.B, CR4.C, CR4.D, CR4.E, CR4.F, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

The Proposed Plan Land Use and Growth Management Element policies and implementing actions noted above reduce VMT generation though the promotion of pedestrian-oriented, mixed-use developments. These types of developments generally result in internal project site trip capture, which reduces VMT generation versus standalone, single-use developments. Other policies and implementing actions in the Land Use and Growth Management, Public Health, Safety and Noise, Economic Sustainability and Circulation Elements would promote a multi-modal transportation system that invites residents to walk, bike or take transit between land uses (in lieu of traveling by private automobile). Ultimately, VMT generation is the result of the interaction between land uses and the transportation network, and the policies listed above would contribute to a land

use/transportation interaction pattern that promotes a reduced VMT generation potential on a per-capita basis.

Mitigation Measures

None required.

Pedestrian Circulation

For this evaluation, the Proposed Plan would be considered to have an impact on pedestrian facilities if it implementation of the Proposed Plan would:

- Disrupt existing pedestrian facilities;
- Interfere with planned pedestrian facilities;
- Not provide accessible pedestrian facilities that conform to current ADA best practices; or
- Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Implementation of the Proposed Plan will enable the City to improve pedestrian infrastructure and programs throughout the city through policies LU2.8, LU3.2, LU3.3, LU3.A, PF5.3, PF5.B, CR1.1, CR1.2, CR1.3, CR1.4, CR1.5, CR1.8, CR1.9, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.J, CR1.K, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CF2.A, CR2.B, CR2.C, CR2.D, CR2.E, CR2.F, CR2.G, CR2.H, CR2.I, CR2.J, CR2.K, CR2.L, CR3.1, CR3.6, CR3.A, CR4.1, CR4.2, CR4.3, CR4.4, CR4.5, CR4.A, CR4.B, CR4.C, CR4.D, CR4.E, CR4.F, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

The policies noted above would promote walking between mixed-use and other types of development that are pedestrian-oriented. The Circulation Element polices and implementing actions include multi-modal transportation impact/mitigation fee programs (CR1.11 and CR1.K) that would provide a funding source for the buildout of the Proposed Plan pedestrian circulation system, including multi-use, off-street trails that more effectively connect land uses in the city. The resulting improved connections along and between existing and planned facilities would improve pedestrian access in the city and serve to ensure that impacts to pedestrian circulation would be less than significant. The Proposed Plan does not include policies or improvements for the circulation system in the unincorporated study areas, where it would have no impact on pedestrian circulation.

Mitigation Measures

None required.

Bicycle Circulation

The Proposed Plan would be considered to have an impact on bicycle facilities if implementation of the Proposed Plan would:

- Disrupt existing bicycle facilities;
- Interfere with planned bicycle facilities;

- Conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards; or
- Not provide secure and safe bicycle parking in adequate proportion to anticipated demand.

Implementation of the Proposed Plan would enable the City to improve bicycle infrastructure and programs throughout the city through policies LU2.8, LU3.2, LU3.3, LU3.A, PF5.3, PF5.B, CR1.1, CR1.2, CR1.3, CR1.4, CR1.5, CR1.8, CR1.9, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.J, CR1.K, CR2.1, CR2.2, CR2.3, CR2.6, CF2.A, CR2.B, CR2.C, CR2.D, CR2.H, CR2.I, CR2.J, CR2.K, CR2.L, CR3.1, CR3.6, CR3.A, CR4.1, CR4.2, CR4.3, CR4.4, CR4.5, CR4.A, CR4.B, CR4.C, CR4.D, CR4.E, CR4.F, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

The policies noted above would promote bicycling between mixed-use and other types of development that promote travel by modes other than private automobile. The Circulation Element polices and implementing actions include multi-modal transportation impact/mitigation fee programs (CR1.11 and CR1.K) that would provide a funding source for the buildout of the Proposed Plan bicycle circulation system, including multiuse, Class I bike paths that more effectively connect land uses in the city and connect the city to the countywide bicycle system. The resulting improved connections along and between existing and planned facilities would reduce impacts to bicycle circulation in the City of St. Helena to below a level of significance.

Mitigation Measures

None required.

Public Transit System

The Proposed Plan is considered to have an impact on public transit if implementation of the Proposed Plan would:

- Result in a significant unanticipated increase in transit patronage; or
- Disrupt existing, or interfere with planned, transit services or facilities.

Implementation of the Proposed Plan would enable the City to improve public transit infrastructure and programs throughout the city through policies LU3.A, ES2.6, CR1.1, CR1.2, CR1.3, CR1.4, CR1.5, CR1.6, CR1.7, CR1.8, CR1.10, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.E, CR1.F, CR1.I, CR1.K, CR1.L, CR3.1, CR3.2, CR3.3, CR3.4, CR3.5, CR3.A, CR3.B, CR3.C, CR3.D, CR4.1, CR4.A, CR4.F, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

While an increase in transit patronage in the city and between the city and study areas would be expected through the implementation of the Proposed Plan, policies in the Proposed Plan would result in coordination between the City and VINE Transit over time to improve transit usage and transit capacity. The Proposed Plan also includes implementing action CR1.E, whereby the City would support efforts to secure additional funding for regional transit service to and from St. Helena. Land use and other related policies would promote bicycling and walking between uses in the city and improve bicycle connectivity to the unincorporated county, thus tempering any

increase in local transit usage. Thus, impacts of the Proposed Plan on the public transit system to a level that is less than significant.

Mitigation Measures

None required.

Impact 3.13-2 Implementation of the Proposed Plan could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (*Less than Significant*)

NVTA is the CMA for Napa County. NVTA has not published a formal CMP for Napa County; however, the Vision 2040 Moving Napa Forward Transportation Plan does outline several goals related to the transportation system. The Main Street (SR-29) and Silverado Trail corridors are included in the Vision 2040 Plan. Therefore, for the purposes of this EIR, a significant impact is identified if the implementation of the Proposed Plan would result in a conflict with one or more of the following goals of the Vision 2040 Plan:

- Serve the transportation needs of the entire community, regardless of age, income or ability;
- Improve system safety in order to support all modes and serve all users;
- Use taxpayer dollars efficiently;
- Support Napa County's economic vitality;
- Minimize the energy and other resources required to move people and goods; or
- Prioritize the maintenance and rehabilitation of the existing system.

The Proposed Plan includes multiple policies and implementing actions that strive to address impacts on the local and regional transportation network, including LU2,8, LU3.2, LU3.3, LU3.7, LU3.9, LU3.10, LU3.A, LU4.4, LU 6.E, ES2.6, PF5.3, PF5.B, and all policies and implementing actions in the Circulation Element. These actions seek to reduce single occupancy vehicle trips, improve circulation throughout St. Helena, and promote walking, bicycling and transit trips as viable transportation options. These policies and implementing actions would be consistent with the provisions of the Vision 2040 Plan. Therefore, the implementation of the Proposed Plan would not result in a conflict with the Vision 2040 Plan, and the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.13-3 Implementation of the Proposed Plan would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. (Less than Significant)

Implementation of the Proposed Plan would have a significant impact if it would increase air traffic levels, resulting in a substantial safety risk.

Due to the nature and scope of the Proposed Plan, its implementation would not have the potential to result in a change in air traffic patterns at any nearby public or private airport or airstrip, including the Angwin-Parrett Field airport in Angwin. Therefore, safety risks due to changes in air traffic patterns would be less than significant.

Mitigation Measures

None required.

Impact 3.13-4 Implementation of the Proposed Plan would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant)

Implementation of the Proposed Plan would have a significant impact if it would introduce a design feature that substantially increases traffic safety hazards.

The Proposed Plan includes policies that would promote the development of a transportation system that avoids hazards due to design features or incompatible uses. These policies include: LU2.8, LU3.2, LU3.3, LU4.4, PF5.3, PF5.B, CR1.1, CR1.2, CR1.3, CR1.4, CR1.5, CR1.8, CR1.9, CR1.10, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.F, CR1.H, CR1.I, CR1.J, CR1.K, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CF2.A, CR2.B, CR2.C, CR2.D, CR2.E, CR2.F, CR2.G, CR2.H, CR2.I, CR2.J, CR2.K, CR2.L, CR4.1, CR4.2, CR4.3, CR4.4, CR4.5, CR4.A, CR4.B, CR4.C, CR4.D, CR4.E, CR4.F, CR5.1, CR5.A, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

Policy CR1.2 and implementing action CR1.A promote the improvement of the multi-modal transportation system, and other policies and implementing actions throughout the Proposed Plan would fund and promote design elements that generally correspond to an improvement in transportation safety conditions. Proposed implementing actions CR2.F outline that the transportation system will be reviewed as part of the development review process. Polices and implementing actions in other elements are designed to reduce vehicle trips and promote walking and bicycling between land uses.

None of the transportation system improvements in the Proposed Plan would introduce new safety hazards at intersections or along roadway segments. Most of the improvements—such as median installation, enhanced crosswalks for pedestrians, and the installation of bicycle lanes or wide curb lanes to enhance circulation for bicyclists—would be designed to improve safety. Therefore, from a programmatic perspective, this impact would be less than significant.

In general, the Proposed Plan land use diagram and policies emphasize transition areas and buffers between land uses of varying intensities, which would serve to reduce potential conflicts between users of the transportation system associated with each land use, including farm equipment, commercial and industrial truck traffic, commute traffic, pedestrians, and cyclists. The specific design and operations of individual future development projects cannot be known at this time; however, policies included in the Proposed Plan would serve to reduce potential impacts from future development. The Proposed Plan was developed with an emphasis on Complete Streets, which by their nature, would improve compatibility between different transportation modes as well as between the transportation system and adjacent land uses. Proposed Plan policies that promote bicycle and pedestrian safety as well as the development of safe routes to school, and that require mitigation of traffic-related impacts would help to identify and address potential safety concerns. Therefore, with adherence to policies included in the Proposed Plan, impacts increasing hazards due to a design feature or incompatible uses would be less than significant.

The Proposed Plan does not include any or improvements regarding the circulation system in the study areas, but does include policies to coordinate with the County on improvements to the countywide trails system and its connections to the city (CR2.B, CR2.M) and to work with Caltrans to address congestion on SR-29. Such policies may have a positive impact on traffic safety in the areas surrounding St. Helena; thus, impacts in the study areas would also be less than significant.

Mitigation Measures

None required.

Impact 3.13-5 Implementation of the Proposed Plan would not result in inadequate emergency access. (Less than Significant)

Implementation of the Proposed Plan could result in a significant impact if it created inadequate design features to accommodate emergency vehicle access and circulation, create obstacles or design features that obstruct emergency access, or resulted in a substantial decrease in travel speeds for emergency response vehicles such that emergency vehicles could be significantly delayed.

Traffic congestion has the potential to affect emergency response times. As discussed in Impact 3.13-1, buildout of the land uses and changes to the roadway network under the Proposed Plan would contribute to traffic volume at intersections on SR-29 that are expected to operate at unacceptable levels of service. Increased traffic volumes are projected to result in increased delays along Main Street, Pope Street, and other key emergency routes, which would likely increase delays for emergency response vehicles. Increased delays typically result in decreased travel speeds. Long queues are projected to form at some unsignalized intersections. And as noted in Impact 3.13-1, construction of the improvements needed to result in acceptable traffic operations at all study intersections are subject to funding, right-of-way and Caltrans approval constraints that result in the City not being able to guarantee that the improvements would be constructed.

However, the Proposed Plan includes numerous policies that would promote the development of a transportation system that promotes efficient emergency access. These policies include: LU3.2, LU3.3, LU4.4, ES2.6, PF5.B, CR1.1, CR1.2, CR1.3, CR1.5, CR1.7, CR1.8, CR1.9, CR1.10, CR1.11, CR1.A, CR1.B, CR1.C, CR1.D, CR1.F, CR1.H, CR1.I, CR1.J, CR1.K, CR1.L, CR2.1, CR2.2, CR2.3, CR2.4, CR2.5, CR2.6, CF2.A, CR2.B, CR2.C, CR2.D, CR2.E, CR2.F, CR2.G, CR2.H, CR2.I, CR2.J,

CR2.K, CR2.L, CR3.1, CR3.3, CR3.4, CR3.5, CR3.7, CR3.A, CR3.B, CR3.C, CR3.D, CR4.1, CR4.5, CR4.A, CR4.D, CR4.E, CR4.F, CR4.G, CR5.1, CR5.A, CR6.1, CR6.2, CR6.3, CR6.A, and CR6.B.

There will be no changes to roadways that could physically impede emergency vehicle access, and no spatial impediments for other vehicles to pull over to allow passage by emergency vehicles. The Proposed Plan requires that all new development plans be approved by the Fire Department prior to issuance of building permits, grading permits or final map approval, and requires that all streets and roads are adequate in terms of width, turning radius, and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress (PS4.E and PS4.6). Therefore, all new projects resulting from the Proposed Plan would have adequate design features to accommodate emergency access without obstruction.

As noted in the Physical Setting section above, some emergency access difficulty due to congestion already occurs in the City of St. Helena. To ensure that emergency vehicles are not further significantly delayed due to traffic congestion, proposed implementing action CR4.G requires the City to consider the use of signal preemption technologies for emergency response or evacuation in locations where response time goals are not met, which would minimize impacts from traffic on emergency vehicles. Other policies would ensure that traffic impacts from new development would be analyzed on a project-by-project basis, and would require the City to use performance measures to determine traffic impacts on all users, including emergency vehicles (CR1.I and CR1.4). The Proposed Plan also requires the City to strive to maintain a ten minute or less travel time during peak periods along Main Street and Silverado Trail, and to continue to coordinate with Caltrans to manage congestion along key routes (CR1.10 and CR 1.L).

Further, the while some increased traffic and congestion-related delays are anticipated to result from the Proposed Plan. As discussed in Impact 3.13-1, VMT would be expected to increase under the Proposed Plan with the addition of more employment and retail opportunities within the city that could have the potential to import vehicle trips from the surrounding communities. However, the model does not fully capture the potential for some existing and future trips to shift to alternative travel modes as the bicycle, pedestrian, and transit systems are enhanced, so actual VMT may be somewhat lower than the model predicts as this mode shift occurs over time. By creating appealing and safe options for alternative modes of travel, including by biking, walking, and transit, the policies listed above would, together, reduce the growth in VMT from what would be expected to occur from traditional development and would reduce traffic congestion arising from new development to the maximum extent practicable.

Given that the Proposed Plan would not result in any inadequate emergency vehicle access design features, would not obstruct emergency access, would consider the impacts to emergency access arising from any new development, and would enact measures to ensure that traffic congestion would not significantly impede emergency vehicle access, the impact is less than significant.

Mitigation Measures

None required.

Impact 3.13-6 Implementation of the Proposed Plan would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

A significant impact would be identified if implementation of the Proposed Plan would result in conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or if it would decrease the performance or safety of these facilities.

As noted in Impact 3.13-1, impacts on pedestrian circulation, bicycle circulation, and the public transit system would be less than significant as implementation of the Proposed Plan would allow the City to adopt a Complete Streets approach. The Complete Streets approach would improve connectivity, performance, and safety for pedestrians, bicyclists, and public transit riders. Further, the improvements for the pedestrian, bicycle and public transit system would enhance connectivity to adopted regional plans and programs such as NVTA's Vision 2040 Plan and would also promote the completion of the proposed Vine Trail. Therefore, implementation of the Proposed Plan would result in a less than significant impact.

Mitigation Measures

None required.

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3.14 Utilities and Service Systems

This section assesses potential environmental impacts from future development under the Proposed Plan as related to public utilities, including water, wastewater, stormwater, and sold waste systems. This section describes existing water, wastewater, stormwater, and solid waste infrastructure and services in the Planning Area, as well as relevant federal, State, and local regulations and programs.

Responses to the NOP regarding topics addressed in this section included the following:

- During heavy rains, the City storm drain outfall to Sulphur Creek can back up and cause flooding up to Tainter Street. This comment is addressed in Impact 3.14-3.

Environmental Setting

PHYSICAL SETTING

Water System

The City of St. Helena provides water service within the city limits as well as to several unincorporated properties, including the three study areas included in the Proposed Plan. The water supply data presented in this section applies to all areas within the city as well as the three study areas.

Existing and Planned Water Supply

The city receives potable water from three sources: Bell Canyon Reservoir, the Stonebridge Well Complex, and water purchased through a contract with the City of Napa (City of St. Helena, 2016). In addition, the city has two sources of non-potable water, the City's Lower Reservoir and a groundwater well located near Napa River.

Bell Canyon Reservoir, located northeast of St. Helena, is the city's primary potable water supply source. The Bell Canyon Reservoir watershed is a subwatershed of the Napa River watershed, encompassing approximately 3,647 acres (Palencia Consulting Engineers, 2014). Bell Canyon is an on-stream reservoir with a physical storage capacity of 2,400 acre-feet. Average historical yield from the reservoir is around 1,800 acre-feet per year (Luhdorff & Scalmanini, 2016). Sustainable yield, defined as the maximum amount of water that the City could withdraw from the reservoir each year and be confident that it could withdraw the same amount every year, ranges from approximately 500 acre-feet in critically dry years to approximately 1,100 acre-feet in wet years (West Yost Associates, 2010). The Bell Canyon Reservoir water supply is treated at the Louis Stralla

Treatment Plant, adjacent to the Bell Canyon Reservoir. It filters and disinfects water drawn from the Bell Canyon reservoir with a treatment capacity of 4.3 million gallon per day (mgd). The plant typically operates at 3.5 mgd, which is less than peak demand due to flow limitations in the inlet piping that restrict use of the plant to less than capacity (City of St. Helena, 2018).

The Stonebridge Well Complex, owned and operated by the City of St. Helena, contains two groundwater wells and a small adjacent water treatment plant and draws water from the Sonoma Volcanic aquifer (City of St. Helena, 2018). It supplies around 20 percent of the City's water supply in Normal years, and about 30 percent of its water supply in Below Normal, Dry, and Critically Dry years (West Yost Associates, 2010). From 2000 to 2015, St. Helena extracted an average of 290 AF of water per year from the two wells, which have a combined production capacity of approximately 595 gallons per minute (City of St. Helena, 2018). As discussed in Chapter 3.9: Hydrology and Water Quality, the groundwater basin has been operating within a sustainable yield for more than 20 years. Water extracted by the Stonebridge Wells is treated at the adjacent treatment plant on site, and has generally good water quality (Luhdorff & Scalmanini, 2016). The City maintains a groundwater level monitoring program in the area that monitors these wells (West Yost Associates, 2010).

The remainder of the City of St. Helena's potable water is purchased from the City of Napa, the result of a long-term water supply agreement that began in 2006 and was revised in 2009 and 2011. The initial term of the contract expires on December 31, 2035. Under the contract delivery terms, Napa is required to make available 600 acre-feet each year, and the City of St. Helena has the option to purchase additional water from Napa (above 600 acre-feet per year) if Napa has available water to sell. Napa's water comes from three sources: the Barker Slough in the Sacramento Delta, delivered via the North Bay Aqueduct and treated at the Edward I Barwick Jamieson Canyon Water Treatment Plan; Lake Hennessy, treated at the Hennessey Water Treatment Plant; and Lake Milliken, treated at the Milliken Water Treatment Plant (City of St. Helena, 2016). The water is received from the City of Napa water transmission system at the City of St. Helena's Rutherford Pump Station.

The annual yield from Bell Canyon Reservoir in recent years has declined significantly when compared to prior years because of the required water releases into the Napa River to support fish. Due to this trend, water purchased from the City of Napa has become an increasing percentage of the total supply. The City is also seeking to reduce withdrawal of groundwater in non-drought years, in order to give the aquifers in the Stonebridge Well Complex the ability to recharge (City of St. Helena, 2018).

Table 3.14- 1: Potable Water Supply, 2000-2015

Calendar Year	Bell Canyon Reservoir (acre-feet)	Stonebridge Wells (acre-feet)	City of Napa Water (acre-feet)[1]	Total Water Supplied (acre-feet)
2000	1,503	345	---	1,849
2001	1,653	468	---	2,121
2002	1,922	349	---	2,271
2003	1,683	463	---	2,146
2004	1,741	480	---	2,221
2005	1,709	382	---	2,091
2006	1,647	410	---	2,057
2007	1,011	521	413	1,944
2008	1,172	479	326	1,977
2009	993	508	314	1,815
2010	1,035	325	285	1,645
2011	874	227	644	1,745
2012	975	182	634	1,791
2013	737	526	583	1,846
2014	646	317	593	1,555
2015	713	244	582	1,450

Notes:

Before 2007, City of Napa water was purchased only for emergency water purposes. In 2007 and after, use of City of Napa water was through the City of Napa water agreement.

Source: Luhdorff & Salmanini, 2016

The City's total water supply makeup varies by annual rainfall as the City uses various sources to ensure sustainable yields, as summarized in Table 3.14-2 below. The safe yield thresholds were developed by the City's Safe Yield Committee.

Table 3.14- 2: Safe Yields

Source	*Normal Water Year (Annual Safe Yield)*	*Dry Year (Phase 2 Water Emergency)*	*Critical Year (Phase 3 Water Emergency)*
Bell Canyon Reservoir	1,000 AF	600 AF	500 AF
Stonebridge Well Complex	350 AF	514 AF	471 AF
City of Napa	600 AF	600 AF	600 AF
Total	***1,950 AF***	***1,714 AF***	***1,571 AF***

Source: City of St. Helena, 2018

St. Helena's potable water demand is within its safe yield parameters. Total existing metered potable water demand averaged about 1,900 acre-feet per year between 2000 and 2015, and has declined in recent years due to improved water use efficiency and short-term demand reductions. Table 3.14-3 lists average annual water demand for land uses within the city limits and within the three study areas. For land uses outside the city limits, metered potable water demand averaged 142 acre-feet per year based on average water demand for 2002-2008.

Table 3.14-3: Estimated Annual Water Demand by Land Use

Land Use	*Existing Units and Jobs (2018)*	*Existing Square Feet in thousands (2018)*[1]	*Existing Average Annual Metered Water Demand in acre-feet (2018)*	*Annual Unit Water Demand (acre-feet per unit)*[2]
Within the City/SOI				
Subtotal			**1,594**[3]	
Within the Study Areas				
Residential Units	168		69	0.41
Service, Retail, and Other Commercial	327	137	41	0.30
Agricultural/Industrial/ Manufacturing	164	97	29	0.30
Subtotal			**139**	
Total			**1,733**	

Notes:

1. Existing square feet estimated using employee-to-square footage ratios from the 1993 St. Helena General Plan (Dyett & Bhatia, 2018).
2. Annual unit water demand factors for Residential and Service, Retail, and Other Commercial taken from West Yost, 2010; for Agricultural/Industrial/Manufacturing from Napa LAFCO Municipal Services Review and Sphere of Influence Update for the City of St. Helena.
3. Water year figure taken from City of St. Helena Monthly Water Report total water delivery through June 31, 2017.

Sources: City of St. Helena, 2018; West Yost, 2010; Dyett & Bhatia, 2018; and City of St. Helena, 2018

To reduce water demand, the City has instituted several conservation measures, including a leak detection and repair program in its water distribution system. The City has a rate of "unaccounted-for" water[1] in the range of 12-16 percent of total water produced (West Yost, 2010).

Water Recycling/Non-Potable Uses

St. Helena does not participate in the North Bay Water Reuse Program and does not currently have its own program for recycling water (North Bay Water Reuse Program, 2016). The City recognizes that water should be recycled and that recycled water should be put to beneficial use, and has contracted with West Yost Associates to identify potential customers and users of recycled water within and contiguous to city limits and prepare cost estimates for the required infrastructure to achieve zero discharge into the Napa River. Potential customers include City turf areas (parks and schools), large landscape areas, and vineyards. The achievement of net zero discharge was

[1] "Unaccounted-for water" is the difference between the amount of water produced or purchased by the City and the amount of water sold to all City customers. This water is a resource that has been consumed but not metered due to leaks, unauthorized use, firefighting, system maintenance, inaccurate meters, and other unmetered consumptions.

determined to be prohibitively expensive, thus the City hopes to develop a smaller recycled water program that does not require seasonal storage in the future (City of St. Helena, 2018).

The City does provide non-potable water from the Lower Reservoir, which has a capacity of approximately 200 to 225 acre-feet for non-potable irrigation use, such as landscaping and agriculture. Roughly 50 acre feet per year is used by Spring Mountain Winery and by RLS Middle School for irrigation purposes, as well as additional water supplied to local contractors for construction purposes Untreated water is also provided to local contractors for construction purposes and can be used as a source of water for fighting fires (City of St. Helena, 2018).

Water System Infrastructure

To deliver water to St. Helena, the City owns and operates two reservoirs, six storage tanks, pumps, four pump stations, and a network of distribution pipelines. In 2015, St. Helena provided water service to approximately 2,312 connections. Of those, 348 connections are located outside the City's jurisdictional boundary. The City's Water Master Plan describes four water pressure zones based on the elevation of water storage facilities within the system (City of St. Helena, 2018).

Wastewater System

The City of St. Helena owns and operates all of its wastewater treatment facilities. St. Helena's Public Works Department is responsible for providing sewer services in the City.

The City maintains a network of more than 22 miles of pipe and trunk lines that collect sewage from homes and businesses, and currently provides sewer service to approximately 1,726 connections, of which 75 percent are residential. All sewer connections are located within city boundaries, with no out-of-agency boundary sewer services provided. Primary services provided by the City for the wastewater system are collection, treatment, disposal, and maintenance. Pipes adequately sized at 8-24 inches for dry weather flows, with the exception of the original town site's four-inch sewer lines, service the majority of the city. Private lateral lines connect a house to the city's main line, typically located within a street right-of-way. Several areas of the city's sewer system suffer from defects, which prevent free flow of sewage, resulting in backwater in the system. One lift station is located east of Main Street while the remaining system operates by gravity. The City's wastewater collection facilities face many challenges including age of infrastructure, reduced root maintenance, grease and oil from restaurants, and infiltration/inflow.

The City continues to address these challenges through updates to the city's Sewer System Management Plan (SSMP), which aims to maintain the collection system and prevent sanitary sewer overflows (SSOs). As of May 2016, 80 percent of inspections were completed in response to a problem, with 20 percent conducted for routine maintenance in areas were problems had previously occurred. The City also conducts sewer line video inspections of the entire collection system. Sewer line maintenance is completed by the City's Street Department and is generally performed twice per year. The City has a planned schedule in place for cleaning sewer lines that are highly susceptible to root intrusion, grease, and various debris.

St. Helena's sewer system conveys wastewater for the area within the city limits to the Wastewater Treatment and Reclamation Plant (WTRP), located within the City of St. Helena at 1 Chaix/Thomann Lane. The WTRP is a secondary level of treatment, low maintenance, advanced

integrated pond system that stores treated effluent and disposes effluent by spray irrigation onto a field owned by the City. The treatment processes at the plant includes a headworks, a comminuter, an advanced integrated waste pond system, chlorine disinfection, and dechlorination. Wastewater enters the plant at the influent pump station by gravity flow through two open channels. The influent is pumped into the primary pond influent control structure. From the pond influent control structure, wastewater enters two facultative ponds with in-pond digesters, via two submerged inlet ports at the bottom of each pond (California Regional Water Quality Control Board, Order No R2-2010-0105, 2010).

One pond serves as an aeration pond while the second serves as a settling pond for biological solids. The effluent control facility provides disinfection, a sampling point, and pumping equipment to dispose the effluent by spray irrigation onto a 90-acre grass field or into a third storage pond. This third storage pond allows for the most effective release of discharge into the Napa River. When pond storage capacity is exceeded during wet months, treated effluent may be discharged into the Napa River under strict regulations.

The City's treatment plant has a permitted dry-weather flow design capacity of 0.5 million gallons per day (mgd), a 3.73 mgd maximum wet weather flow, and a 2.8 mgd average wet weather flow. The City's sewer lines do not measure flow. However, sewage flow can be estimated based on use of treated municipal (fresh) water supplied to various land uses as measured with water meters.

Table 3.14-4: Summary of Wastewater Statistics

	2010	*2011*	*2012*	*2013*	*2014*	*2015*
Number new connections	0	0	1	11	3	18
Daily average treatment in millions (mgd)	0.577	0.577	0.542	0.408	0.403	0.384

Source: Administrative Draft MSR/SOI Updates, 2017

Table 3.14-5: Water Treatment Plant Design Capacity

Description	*Capacity/Flow*
Permitted Daily Dry-Weather Flow Capacity	0.50 mgd
Permitted Daily Wet Flow Capacity	2.8 mgd
Average Wet Weather Flow Volume	0.36 mgd
Peak Flow within the Past Year	1.03 mgd

Source: St. Helena, 2016

Storm Drainage

The City of St. Helena provides stormwater/flood management within its borders, and owns and operates the Stormwater drainage system, a conveyance system of pipes and drains. Storm drainage infrastructure includes the City maintained storm drain line, privately maintained storm drain lines, and a Caltrans storm drain line. There are also several ponds, ditches and channels.

The City Public Works Department maintains drain inlets and drain manholes. Many of the storm drainage structures are located within sidewalks or other public rights-of-way.

The City's Stormwater system discharges storm water to Sulphur Springs Creek, York Creek, and the Napa River, local natural drainage features. All three of these waterways pass through the City limits and have some floodplain within the City (see Figure 3.9-3: Flood Zones). All precipitation and other water going into the City storm drains eventually runs to the Napa River then onward to the Pacific Ocean. The City is the floodplain manager for these waterways (St. Helena, 2016).

Maintenance by City staff includes actively watching for all types of potential hazards, storm drain blockages, and any other unforeseen safety problems. The City has an inspection program to routinely inspect and maintain storm water inlets and outfalls for debris and obstructions, sand and gravel build-up, and structural damage or vandalism.

Although the Napa River is usually relatively calm, it is subject to flash floods during storm events. Sulphur Creek is also prone to flooding. The neighborhood near the Vineyard Valley Mobile Home Park suffered from severe flooding in 1986 and 1995, primarily on the Napa River. The flooding was due to creek and river overflows, with some flooding due to sheet flow of water across agricultural land. The mobile home park is located within the 100-year floodplain contiguous to the west bank of the Napa River (see Figure 3.9-3: Flood Zones). To help deal with this flooding, the City developed the Flood Protection and Flood Corridor Restoration Project which included a large levee and floodwall to protect the Vineyard Valley area, bank stabilization, removal of a channel constriction, internal stormwater management, and creation of a terrace. The Vineyard Valley Levee was constructed in 2010.

For more detailed information on flooding within the City of St. Helena, please see Chapter 3.9: Hydrology and Water Quality.

Solid Waste

Upper Valley Disposal & Recycling (UVDS) provides solid waste services to residents and businesses in the City of St. Helena and unincorporated Napa County, including the three study areas. UVDS's services include refuse, recycling, and green waste collection. They also provide restaurant food composting services. The single-stream recycling program accommodates a wide array of wastes including plastic, glass, steel, tin, aluminum, and most types of paper and cardboard. The company also conducts public education to teach residents and businesses about composting and its recycling and electronic waste disposal programs. As of 2016, UVDS diverted approximately 69 percent of collected waste away from landfills (City of St. Helena, 2015; Abreu, 2010; and Abreu, 2018).

Solid waste is disposed of at the Clover Flat Landfill, located on the Silverado Trail north of St. Helena and is also operated by Upper Valley Disposal Company. The existing amount of solid waste received at the landfill is 50,000 tons per year. The landfill has a permitted capacity of 4.90 million cubic yards. As of 2018, the landfill has a remaining capacity of approximately 2.62 million cubic yards. The landfill's estimated closure date is 2047. The landfill has 10 years remaining on its existing franchise agreement with Napa County but has an estimated capacity to last approximately 30 years (City of St. Helena, 2015; Abreu, 2010; and Abreu, 2018).

The Clover Flat Landfill revised its Solid Waste Facility Permit in 2010 to comply with provisions of the State of California's Climate Change Scoping Plan. The changes provide for mandated commercial recycling processing services, production of organic feedstocks for composting, and renewable energy generation.

Hazardous waste is handled by Napa County, which operates the Napa-Vallejo Household Hazardous Waste Collection Facility, located at 889A Devlin Rd in American Canyon.

REGULATORY SETTING

Federal Regulations

Federal Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), administered by the U.S. EPA in coordination with the states, is the main federal law that ensures the quality of drinking water. Under the SDWA, the U.S. EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Department of Public Health administers the regulations contained in the SDWA in the State of California.

United States Environmental Protection Agency

The 1986 amendments to the Safe Drinking Water Act and the 1987 amendments to the Clean Water Act established the Environmental Protection Agency (EPA) as the primary authority for water programs. The EPA is the federal agency responsible for providing clean and safe surface water, groundwater, and drinking water, and protecting and restoring aquatic ecosystems. The planning area is in EPA Region 9 (Pacific Southwest), which includes Arizona, California, Hawaii, Nevada, Pacific Islands, and Tribal Nations.

Federal Water Pollution Control Act of 1972 (Clean Water Act)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into "waters of the United States." The Act specifies a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Some of these tools include Total Maximum Daily Loads (TMDLs), water quality certification, and regulations on discharge of dredge or fill material. For more details, see Section 3.9: Hydrology and Water Quality.

National Pollutant Discharge Elimination System

The Clean Water Act was amended in 1987 to include urban and stormwater runoff, which required many cities to obtain a National Pollution Discharge Elimination System (NPDES) permit for stormwater conveyance system discharges. Section 402(p) of the Clean Water Act prohibits discharges of pollutants contained in stormwater runoff, except in compliance with a NPDES permit.

State Regulations

California Department of Public Health

The Drinking Water Program, which regulates public water supply systems, is a major component of the State Department of Public Health Division of Drinking Water and Environmental Management. Regulatory responsibilities include the enforcement of the federal and State Safe Drinking Water Acts, the regulatory oversight of public water systems, issuance of water treatment permits, and certification of drinking water treatment and distribution operators. State regulations for potable water are contained primarily within the Food and Agricultural Code, the Government Code, the Health and Safety Code, the Public Resources Code, and the Water Code. Regulations are from Title 17 and Title 22 of the California Code of Regulations.

The regulations governing recycled water are found in a combination of sources including the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations. Issues related to treatment and distribution of recycled water are generally under the influence of the SWRCB.

California Porter–Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board (SWRCB) and nine regional water quality control boards address water quality and rights regulation. The five-member SWRCB protects water quality by setting statewide policy, coordinating and supporting the Regional Water Quality Control Board (RWQCB) efforts, and reviewing petitions that contest RWQCB actions. The SWRCB is also solely responsible for allocating surface water rights. The Bell Canyon Reservoir operates under Permits 9157 and 14810 with the SWRCB. The SWRCB's D-1222 Adopter in May 1965 is also applicable.

Each RWQCB makes critical water quality decisions for its region, including setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions. The Planning Area lies within the jurisdiction of the San Francisco Regional Water Quality Control Board.

The Act authorizes the SWRCB to enact state policies regarding water quality in accordance with CWA 303. In addition, the Act authorizes the SWRCB to issue waste discharge requirements (WDRs) for projects that would discharge to State waters. SWRCB Order No. 2006-0003 provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a sewer system management plan.

The wastewater treatment plant is regulated through the San Francisco Regional Water Quality Control Board (RWQCB) and State laws. On November 1, 2010, the California Regional Water Quality Control Board Order No. R2-2010-0105 served to reissue NPDES Permit No. CA0038016 and regulated the City's Wastewater Treatment Plant. This permit expired October 31, 2015. A new regulatory permit was issued by the San Francisco RWQCB in 2016 (ORDER No. R2-2016-0003 and NPDES No. CA0038016) setting higher treatment standards for the WWTP and was accompanied by a cease-and-desist-order, requiring the plant to meet upgrade requirements by 2021 (Permit No. R2-2016-0004). The 2016 Cease and Desist Order (CDO) No. R2-2016-0004

addressed chronic permit exceedances and established tasks and a time schedule for the City to comply with the 2016 Permit's new biochemical oxygen demand (BOD) and total suspended solids (TSS) effluent limits. The state recently issued a $290,177 settlement penalty due to untreated wastewater contaminating groundwater and nearby wells, caused by an unlined holding pond.

As required by the NPDES permit, the City must meet the 2016 permit's new BOD and TSS effluent limits over the next five years. The CDO requires the City to incorporate filtration or another process into the treatment system. An upgrade to an advanced secondary treatment system may be required. The City's 2015 Wastewater Facilities Evaluation Update provided three recommendations to improve plant performance: 1) construct solids management systems to manage solids accumulation within design recommendations; 2) automate disinfection and dechlorination during river discharges; and 3) construct a rock filtration system and disinfection facility to improve removal of TSS from algae growth in ponds. If implemented, the Order identifies the rock filtration system as the best recommendation to facilitate compliance with the 2016 Permit's effluent limits (CDO No R2-2016-0003). The CDO allows the City to continue discharging effluent under the old discharge limitations as long as they are complying with the task schedule (St. Helena, 2016).

The City's most recent regulatory permit (No. R2-2016-0003) issued by the San Francisco RWQCB references the City's 2015 Wastewater Facilities Evaluation Update which indicates the service area population is only growing slightly and that per capita wastewater flows are declining due to conservation measures. The report also indicated that 2030 average dry weather flows will be 0.50 mgd, the current capacity, however the City should plan to increase capacity to 0.65 mgd by 2030 to account for uncertainty (St. Helena, 2016; Permit No. R2-2016-0003).

The Porter-Cologne Water Quality Control Act further requires that the SWRCB or the RWQCBs adopt water quality control plans (basin plans) for the protection of water quality. Basin plans also provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. For more details, see Chapter 3.9: Hydrology and Water Quality.

California Department of Water Resources

The California DWR is responsible for the operation and maintenance of the California SWP. DWR is also responsible for overseeing the statewide process of developing and updating the California Water Plan (Bulletin 160 series); protecting and restoring the Sacramento–San Joaquin Delta; regulating dams, providing flood protection, and assisting in emergency management; educating the public about the importance of water and its proper use; and providing technical assistance to service local water needs.

Senate Bills 610 and 221

Enacted in 2002, SB 610, which was codified in the State Water Code beginning with section 10910, requires the preparation of a water supply assessment (WSA) for projects within cities and counties that propose to construct 500 or more residential units or the equivalent. SB 610 stipulates that when environmental review of certain large development projects is required, the water agency that is to serve the development must complete a WSA to evaluate water supplies that are or will be available during normal, single-dry, and multiple-dry years during a 20-year

projection to meet existing and planned future demands, including the demand associated with a proposed project.

Enacted in 2001, SB 221, which was codified in the State Water Code beginning with section 10910, requires that the legislative body of a city or county, which is empowered to approve, disapprove, or conditionally approve a subdivision map, must condition such approval upon proof of sufficient water supply. The term "sufficient water supply" is defined in SB 221 as the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that would meet the projected demand associated with the proposed subdivision. The definition of sufficient water supply also includes the requirement that sufficient water encompass not only the proposed subdivision, but also existing and planned future uses, including agricultural and industrial uses.

The Water Conservation Act of 2009 (SB X7-7)

California legislation enacted in 2009 as SB 7 of the 7th Special Legislative Session (SB X7-7) instituted a new set of urban water conservation requirements known as "20 Percent By 2020." These requirements stipulate that urban water agencies reduce per-capita water use within their service areas by 20 percent relative to their use over the previous 10 to 15 years.

California Green Building Standards Code

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CALGreen Code) that requires the installation of water-efficient indoor infrastructure for all new projects beginning after January 1, 2011. CALGreen Code was incorporated as Part 11 into Title 24 of the California Code of Regulations. The CALGreen Code applies to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure. All development projects must satisfy the indoor water use infrastructure standards necessary to meet the CALGreen Code. The CALGreen Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CALGreen Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline." The CALGreen Code also requires diversion of at least 65 percent of the construction waste generated during most new construction projects. Agencies currently enforcing building codes are responsible for enforcement of the CAL Green Code.

State Updated Model Landscape Ordinance (Assembly Bill 1881 (2006))

The State's updated Model Water Efficient Landscape Ordinance requires cities and counties to adopt landscape water conservation ordinances by July 15, 2015.

California Urban Water Management Planning Act

The California Legislature enacted the Urban Water Management Planning Act of 1983 (California Water Code Sections 10610 through 10656) to support conservation and efficient use of urban water supplies at the local level. The act requires that every urban water supplier that provides water to 3,000 or more customers, or over 3,000 AF of water annually, to make every

effort to ensure the appropriate level of reliability in its water service to meet the needs of its customers during normal, dry, and multiple-dry years. The act requires that total projected water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single- and multiple-dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses.

Applicable urban water suppliers within California are required by the Water Code to prepare and adopt a UWMP and update it every five years. A UWMP is required in order for a water supplier to be eligible for the DWR-administered state grants, loans, and drought assistance. A UWMP provides information on water use, water resources, recycled water, water quality, reliability planning, demand management measures, best management practices (BMPs), and water shortage contingency planning for a specified service area or territory.

California Assembly Bill 1739 (201)/ California Senate Bills 1168 & 1319 (2014)

These three bills are collectively known as the Sustainable Groundwater Management Act (SGMA). In response to the 2014 SGMA, Napa County prepared a Basin Analysis Report (Luhdorff & Scalmanini, 2016) analyzing subbasin conditions and demonstrating that the basin has operated within its sustainable yield over a period of at least 10 years, and to support the ongoing management of the subbasin's resources. For more details, see Chapter 3.9: Hydrology and Water Quality.

California Emergency Graywater Regulations

In 2009, as part of the Governor's declared State of Emergency, Chapter 16A "Nonpotable Water Reuse Systems" was incorporated into the 2007 California Plumbing Code. Chapter 16A establishes minimum requirements for the installation of graywater systems in residential occupancies regulated by the California Department of Housing and Community Development, providing guidance and flexibility designed to encourage the use of graywater. The standards allow small graywater systems to be installed in homes without a construction permit, substantially reducing the barriers to installing small residential graywater systems in California. The purpose of the regulations is to conserve water by facilitating greater reuse of laundry, shower, sink, and similar sources of discharge for irrigation and/or indoor use; to reduce the number of noncompliant graywater systems by making legal compliance easily achievable; to provide guidance for avoiding potentially unhealthful conditions; and to provide an alternative way to relieve stress on private sewage disposal systems.

California's Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle) is the State's leading authority on recycling, waste reduction, and product reuse. CalRecycle plays an important role in the stewardship of California's vast resources and promotes innovation in technology to encourage economic and environmental sustainability. CalRecycle brings together the State's recycling and waste management programs and continues a tradition of environmental stewardship. Mandated responsibilities of CalRecycle are to reduce waste, promote the management of all materials to their highest and best use, and protect public health and safety and the environment.

California Integrated Waste Management Act (AB 939)

AB 939, California's Integrated Waste Management Act of 1989, mandates that 50 percent of solid waste be diverted by the year 2000 through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity. This requires each region to prepare a source reduction and recycling element to be submitted to CalRecycle, which administers programs formerly managed by the state's Integrated Waste Management Board and Division of Recycling. The City of St. Helena participates in the Upper Valley Waste Management Agency to achieve compliance with AB 939.

California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327)

AB 1327 was established in 1991, which required CalRecycle to develop a model ordinance for the adoption of recyclable materials in development projects. Local agencies were then required to adopt the model, or an ordinance of their own, governing adequate areas for collection and loading of recyclable materials in development projects.

Disposal Measurement System Act of 2008 (SB 1016)

SB 1016 maintains the 50 percent diversion rate requirement established by AB 939, while establishing revised calculations for those entitles who did not meet the 50 percent diversion rate. SB 1016 also established a per capita disposal measurement system to make the process of goal measurement, as established by AB 939, simpler, timelier, and more accurate. The new disposal-based indicator—the per capita disposal rate—uses only two factors: a jurisdiction's population (or in some cases employment) and its disposal as reported by disposal facilities.

Mandatory Commercial Recycling (AB 341)

Effective July 1, 2012, AB 341 requires that commercial enterprises that generate four cubic yards or more of solid waste weekly participate in recycling programs. This requirement also includes multifamily housing complexes of five units or more, regardless of the amount of solid waste generated each week.

Mandatory Commercial Organics Recycling (AB 1826)

AB 1826 requires that commercial enterprises that generate certain amounts of organic and solid waste weekly participate in composting programs. The law includes escalating thresholds to ease businesses into commercial organic recycling.

State Climate Change Scoping Plan

In accordance with the California Global Solutions Act of 2006 (AB 32), the California Air Resources Board prepared the 2008 Climate Change Scoping Plan (first updated in 2014 and a second update is pending for 2017), which includes a series of recommendations regarding recycling and waste. Key recommendations include reducing methane emissions at landfills; increasing waste diversion, composting, and other beneficial uses of organic materials; and mandating commercial recycling (Cal Air Board, 2008 & 2017).

Local Regulations

Existing St. Helena General Plan

The existing St. Helena General Plan, adopted in 1993, outlines policies, standards, and programs that together provide a comprehensive, long-term plan for physical development within the city. Individual development projects proposed within the city must demonstrate general consistency with the goals and policies outlined within the General Plan, which articulates and implements the city's long-term vision, including provisions for utilities and service systems.

The Proposed Plan analyzed in this EIR is the St. Helena 2040 General Plan Update (Proposed Plan), which is an update of the existing General Plan. If the Proposed Plan is adopted, it will replace the existing General Plan, and future developments within the city will be subject to policies outlined in the updated document.

Napa County Stormwater Pollution Prevention Program

The cities of Napa and St. Helena, the Town of Yountville, and the County of Napa formed the Napa County Stormwater Pollution Prevention Program (NCSPPP). These jurisdictions, including the City of St Helena, are regulated under Phase II General MS4 Permit, Order No. 2013-0001-DWQ and NPDES General Permit No. S000004 (California, 2013).

Together, the NCSPPP works to implement BMPs, measurable goals and timetables for implementation in five program areas – Public Education, Public Participation, Illicit Discharge Detection and Elimination, Construction Site Storm Water Runoff Control, and Post Construction Storm Water Management. Although the County of Napa and each of the cities and towns implement their own individual stormwater pollution prevention programs, the NCSPPP allows for coordination and consistency of approaches among the individual participants and documents their efforts in annual reports that are submitted to the Regional Water Quality Control Board. St. Helena has adopted the Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual for Design Guidance for Stormwater Treatment and Control for Projects.

St. Helena Water Conservation and Emergency Shortage Ordinances

The City of St. Helena has ordinances addressing water supply availability and water shortage contingencies. These include Ordinance 2015-4, which enables the City to comply with the California emergency drought regulations, and Chapter 13.12.050 of the Municipal Code, which requires new development to "completely offset its water requirement…" by identifying residential or non-residential properties eligible for retrofitting with water efficient hardware and verifying that the required number of retrofits have been completed prior to the issuance of a certificate of occupancy. Chapter 13.04.220 of the Municipal Code also addresses water shortage emergency conditions.

St. Helena Water Neutral Policy for Development

The St. Helena Water Neutral Policy, established in 2011, requires that applicants must be water-neutral (from the City-delivered water system) through any combination of on-site water conservation measures, offsite retrofitting, and well water, and that water neutrality shall be

demonstrated in a quantitative water analysis of the project. The analysis must consist of the calculation of the baseline existing demand, the proposed water demand, a comparison of the two and the proposed retrofits to achieve a zero water use increase from the proposed development. If onsite retrofits cannot achieve net zero increase, the developer shall identify offsite retrofits or pay an in-lieu fee. Developer responsibilities are detailed in Section 13.12 of the City Municipal Code.

St. Helena Municipal Code

St. Helena Municipal Code: Revenue and Finance

In accordance with Municipal Code Section 3.32, the City of St. Helena collects water, wastewater, and storm drainage impact fees from all new development to ensure adequate water, wastewater, and stormwater facilities and services.

St. Helena Municipal Code: Health and Safety

Chapter 8.04 specifies locations, care of, and disposal for solid waste collection. It requires containment of rubbish to prevent scattering and use of the City-mandated contractor to collect all refuse. Chapter 8.20.010 prohibits littering within the City and requires use of containers to collect refuse.

St. Helena Municipal Code: Public Services

Municipal Code Chapter 13.04 establishes City of St. Helena requirements for water service connections, water main extensions, water rates, procedures during water shortages, protection of reservoirs from pollution, and other water-related requirements. Residents are prohibited from using potable water to wash driveways or sidewalks, overly irrigating landscapes causing run-off to other areas, and watering landscapes within 48 hours of a rain event.

Chapter 13.10 codifies the City's water management plan, and provides a means to allocate water to new development.

Chapter 13.12 establishes water use efficiency guidelines, including water conservation measures required in new development. Any new water connection from new development must offset new demand by an equal amount of water by supplying water-efficient retrofits or an in-lieu retrofit fee to existing facilities as part of the City's Water Neutral Policy for Development.

Chapter 13.16 establishes regulations for drilling wells, including permits and fines for violations.

Chapter 13.20 establishes requirements for sewer main connections, sewer charges, and other wastewater-related requirements, including requiring connection to the city sewer under the following conditions:

- Approval by the City of any use permit or variance applied for by or with the consent of the owner of the parcel on which the building or structure is located;
- Approval by the City for recordation of any final parcel map, subdivision map or lot line adjustment affecting any portion of the parcel upon which said building or structure is located, in which case the prorated charge under Section 13.20.050 of this chapter shall be

paid for the entire parcel as constituted prior to recordation of any such parcel or subdivision map or documents affecting the lot adjustment;

- Issuance of a building permit or permits for any parcel on which the building or improvements are located for improvements totaling more than twenty thousand dollars ($20,000.00) in value within any continuous sixty (60) month period or for improvements which comprise replacement, relocation, or substantial reconstruction of an existing discrete sewage disposal system serving the parcel.

Chapter 13.24 sets uniform requirements for discharges into the wastewater collection and treatment system and enables the agency to comply with the administrative provisions of the Clean Water Grant Regulations, the water quality requirements set by the regional water quality control board and the applicable effluent limitations, national standards of performance, toxic and pretreatment effluent standards, and any other discharge criteria which are required or authorized by state or federal law.

Chapter 13.32, the City of St. Helena stormwater and runoff pollution control ordinance, sets discharge prohibitions and requires reduction of pollutants in stormwater and compliance with the City's NPDES permit.

Impacts and Mitigation Measures

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact related to hazards and hazardous materials would occur if the Proposed Plan would:

Criterion 1: **Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;**

Criterion 2: **Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;**

Criterion 3: **Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;**

Criterion 4: **Have insufficient water supplies available to serve the project from existing entitlements and resources such that new or expanded entitlements needed;**

Criterion 5: **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;**

Criterion 6: **Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or**

Criterion 7: Not comply with federal, State, and local statutes and regulations related to solid waste.

METHODOLOGY AND ASSUMPTIONS

The analysis for this section addresses impacts associated with public utilities and City service systems due to projected growth from implementation of the Proposed Plan. Potential impacts on utilities and service systems are analyzed within the context of existing plans, policies, and conditions of approval, as well as the policies included in the Proposed Plan.

The water and wastewater facility analysis in this section is based on a technical memorandum and a final City of St. Helena Water Supply Plan prepared by West Yost Associates, Consulting Engineers, for the City of St. Helena (West Yost Associates, 2007 and 2010). These documents are available for review at the City of St. Helena Planning Department, 1480 Main Street, St. Helena. In addition, a *Municipal Service Review and Sphere of Influence Update for the City of St. Helena* is in the process of being prepared, and this analysis is consistent with the findings of that draft document. Impacts that would be substantially reduced or eliminated by compliance with these policies or requirements are determined to be less than significant.

Subsequent CEQA review at the project level may be required to determine whether significant environmental effects would result from the construction of water distribution lines, wastewater collection system components, storm drainage conveyance pipes, and any onsite storage or pumping facilities on development sites, or other utilities improvements. No specific projects are proposed at this time, so these site-specific impacts are not analyzed. Once specific projects are proposed, project-level environmental review will occur when proposed development plans are prepared.

The Planning Area for the Proposed Plan includes three study areas in unincorporated Napa County immediately adjacent to the city limits where the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities (see Chapter 2: Project Description for additional details). Existing conditions related to utilities and service systems in the whole of the Planning Area are documented above; however, as the City does not have jurisdiction outside of the city limits and sphere of influence (SOI), Proposed Plan policies and actions would not apply in the study areas. Therefore, implementation of the Proposed Plan would not result in direct impacts related to utilities and service systems in the study areas except for the potential impacts from the implementation of policies and actions related to the delivery of municipal services discussed below. Cumulative impacts related to utilities and service systems are discussed in Chapter 5: CEQA Required Conclusions.

RELEVANT PROPOSED PLAN POLICIES

Land Use and Growth Management Element

- ***LU1.1*** Require new development to occur within well-defined boundaries and be consistent with the ability to provide urban services. New development should mitigate infrastructure impacts by using sustainable, best management practices in green building and stormwater management and paying its share of development impact fees, while minimizing impacts on sewer, water, energy, and natural resources.

- ***LU1.2*** Allow urban development to occur only within the Urban Limit Line. Consider an exception for on-site employee housing on Agricultural lands. Urban services, such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line.

  The Urban Limit Line may only expand when the amount of developable land within the Urban Limit Line is insufficient to implement the General Plan policies or when logical to include developed lands receiving urban services from the City. Expansion outside the Urban Limit Line should first be considered in Urban Reserve Areas. Expansion into other areas outside the Urban Limit Line should be considered only when the proposed land use is found to further the goals and long-term objectives of the City and does not result in adverse impacts to adjacent uses in either the urban or rural areas.

Public Facilities and Services Element

- ***PF1.1*** Require that the approval of new development be contingent upon the ability of the City to provide water without exceeding the safe annual yield of its water supply system.
- ***PF1.3*** Prohibit water service to new customers outside the city limits unless a potential threat to health and safety can be demonstrated.
- ***PF1.4*** Proactively reduce the City's commitment to provide water to uses outside the city limits.
- ***PF1.A*** Continue to implement the City's water conservation ordinances and programs that act to reduce per capita water consumption. In addition, consider incentives to property owners to install rainwater collection barrels, and continue to require water efficient irrigation systems and drought tolerant landscaping.
- ***PF1.B*** Implement the following water system improvements:
  - Replace obsolete, undersized water mains to provide more efficient circulation, higher pressures and lower pipe losses during heavy demand periods.
  - Continue service of water mains to reduce unaccounted-for water losses.
- ***PF1.C*** Continue to aggressively look for new water supply sources adequate to serve St. Helena's population into the future. New sources may include adoption of new technologies, such as effective water recycling.
- ***PF1.G*** If feasible, adopt a Water Conservation Program that includes the following actions:
  - Utilize a Water Conservation staff member or consultant, as needed;
  - Update the new construction offset program;
  - Establish an Irrigation Advisory Service and promote "Smart Irrigation Controllers";
  - Adopt new requirements for "ultra-efficient" plumbing fixtures for new development and rebates for existing users;
  - Reduce average dry weather flow; and
  - Evaluate incentives for replacement of turf; and rainwater catchment, etc.

- ***PF1.H*** Ensure that water rates are designed to promote conservation, as well as to ensure that needed capital improvements are made in a timely manner.
- ***PF1.J*** Develop and adopt regulations to ensure that total potable water usage is not greater than 1950 acre-feet per year unless the project includes housing affordable to lower income households and a determination is made pursuant to Government Code 65589.7 that a "sufficient water supply" is available to serve that project and none of the exceptions set forth in 66589.7 (c) apply; or, b) new sources of water are made available to the City. Residential projects that contain affordable housing shall receive priority allocation of water.
- ***PF1.K*** Aggressively promote adoption of "best practices" for reducing water usage in the existing housing stock.
- ***PF1.L*** Require that all new residential housing projects incorporate "best practices" for minimizing water usage.
- ***PF1.M*** Limit any future non-residential development to projects that incorporate "best practices" for water conservation.
- ***PF1.N*** Institute an ongoing process of mandatory audits of all existing non-residential water users to promote adoption of "best practices" for water conservation.
- ***PF1.O*** Provide the full-time capability in the City to implement and oversee water conservation policies and to pay for this capability out of water revenues rather than the General Fund.
- ***PF2.1*** Ensure adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth, taking into account the City's Growth Management System, the Regional Housing Needs Allocation and the needs of non-residential users.
- ***PF2.B*** Continue wastewater treatment system upgrades to reduce the number and scale of implementation constraints on the recycled water program. This can ensure that the system is ready for investment when funding for implementation becomes available.
- ***PF2.C*** Urban services such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line. Exceptions will be permitted when undue hardship can be demonstrated, and when proposed improvements are not found to induce growth.
- ***PF3.A.*** Require developers to provide adequate drainage improvements and detention to mitigate storm runoff from the site to the nearest major waterway. Drainage improvements can include measures such as creating settling basins, bio-swales and the use of pervious materials for driveways and parking areas. Key waterways include York Creek, Sulphur Creek and the Napa River.
- ***PF3.B.*** Continue to require that new developments contribute on a fair share basis to the extension or upsizing of storm drainage to accommodate it through the construction of infrastructure and/or the payment of Impact Fees.
- ***PF3.E.*** At the time of development review, require that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval. (Also see Climate Change Element, Topic Area 4)

- ***PF4.1*** Increase recycling and composting as part of a coordinated waste reduction and management program.
- ***PF4.A*** Develop and adopt a Waste Management Master Plan to enhance existing waste management services and systems. Assess the system's capacity to serve current and future residents, recommend improvements and identify funding mechanisms and implementation partners. The plan should include landfill space plans and a food waste composting program that incorporates approaches for on-site food waste composting for residences and businesses. Update the plan regularly to address changing needs and priorities.
- ***PF4.B*** Install recycling receptacles downtown and in all public parks and major streets. Ensure that the design and appearance of the receptacles fosters high-quality community design, aesthetics, and character.

Community Design Element

- ***CD1.B*** Adopt a Green Building and Landscaping Ordinance that establishes green building and landscaping site design standards customized to meet the unique climatic context of the community. Landscaping standards should limit impervious paving and identify standards and incentives that encourage the use of locally-propagated native, low-water, drought-tolerant planting and integrated pest management practices.

Open Space and Conservation Element

- ***OS3.D*** Maintain the City's water management program, a program for implementing water conservation efforts for households, businesses, industries, public infrastructure, and agricultural activities. This program should include the following measures:
  - Identify building, plumbing and landscaping standards and technologies that conserve water, especially during water shortages;
  - Implement standards that require low-flow appliances and fixtures in all new developments; and
  - Encourage and model the use of drought tolerant and native vegetation in landscaping.

Climate Change Element

- ***CC3.1*** Enhance recycling, composting and source reduction services for residential and commercial uses to support Napa County's countywide waste reduction goal to achieve overall waste diversion of 75 percent to 90 percent by 2020.
- ***CC3.A*** Establish programs and create incentives to achieve a 75 to 90 percent citywide construction and demolition debris waste diversion level by 2020.
- ***CC3.B*** Establish programs and create incentives to achieve a 75 percent organic (food and green) waste diversion level by 2020.
- ***CC3.C*** Establish citywide collection services for segregated food waste from commercial sources.

- ***CC3.D*** Encourage home composting of organic waste.
- ***CC3.E*** Create and support other programs, such as the Napa County Green Business Program and the green restaurant program, that help achieve the 75 to 90 percent overall waste diversion goal.
- ***CC3.F*** Adopt environmentally-preferable purchasing measures and explore joint-purchasing agreements with partner agencies and businesses.
- ***CC4.H*** Adopt landscape ordinances that promote drought resistant plants, and limit or restrict lawns and other high-water-demand plants unless irrigated with reclaimed or grey water systems.
- ***CC6.1*** Install renewable energy systems at City facilities.
- ***CC6.H*** Establish a comprehensive, user-friendly recycling program that involves all City departments and facilities. Recover 70 to 85 percent of all waste generated in City operations.

IMPACT ANALYSIS

Implementation of the Proposed Plan would result in the following impacts with respect to utilities and services.

Impact 3.14-1: Potential development that could be allowed under the Proposed Plan would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board. *(Less than Significant)*

A significant impact would occur if development under the Proposed Plan were to exceed the wastewater treatment requirements established in the regulatory permit issued by the San Francisco RWQCB in 2016 (ORDER No. R2-2016-0003 and NPDES No. CA0038016). A significant impact would also occur if the projected demand for wastewater treatment caused by buildout of the Proposed Plan were to exceed projected wastewater treatment capacity.

The Planning Area lies within the jurisdiction of the San Francisco RWQCB. As discussed in the Regulatory Setting section above, the SWRCB WDR mandates reducing SSOs by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a sewer system management plan. The regulatory permit issued by the RWQCB was accompanied by a cease-and-desist-order (CDO) requiring the plant to meet upgrade requirements by 2021 (Order No. R2-2016-0004), due to the fact that the City was known to be out of compliance with the current wastewater treatment standards, necessitating the measures specified in the CDO.

The 2016 permit specified weekly average biochemical oxygen demand (BOD) effluent limits of 25 mg/L; monthly average BOD effluent limits of 15 mg/L; weekly average total suspended solids (TSS) effluent limits of 20 mg/L; and monthly average TSS effluent limits of 15 mg/L. The accompanying CDO addressed chronic permit exceedances, set interim BOD and TSS effluent limitations of 45 mg/L weekly average and 30 mg/L monthly average, and established tasks and a time schedule for the City to comply with the 2016 Permit's new BOD and TSS effluent limits. As required by the NPDES permit, the City must meet the 2016 permit's new BOD and TSS effluent

limits by February 28, 2021. The CDO requires the City to incorporate filtration or another process into the treatment system, and may require an upgrade to an advanced secondary treatment system. The CDO allows the City to continue discharging effluent under the old discharge limitations, as long as they are complying with the task schedule (St. Helena, 2016).

Following the issuance of the 2016 permit and accompanying CDO, the City of St. Helena completed the Wastewater Treatment and Reclamation Plant Improvements Draft Feasibility Study to analyze various options to meet the NPDES permit effluent limits. The City is actively working to finalize alternatives and meet the compliance schedule, and must begin implementation by March 1, 2019 (RWQCB, 2016).

The St. Helena Wastewaster Treatment and Reclamation Plant (WTRP) has permitted capacity to treat 0.5 mgd average dry weather flow (ADWF) and 2.8 mgd peak wet weather flow (PWWF), as shown in Table 3.14-5. Additionally, per the City's 2016 regulatory permit issued by the RWQCB, the City plans to increase wastewater treatment plant permitted capacity to 0.65 mgd by 2030 (City of St. Helena, 2018), as the existing treatment facilities at the City of St. Helena WWTRP have sufficient capacity to treat ADWF flows up to and beyond 0.65 mgd when operated under design conditions (Bennett Engineering Services, 2015). The Proposed Plan, at buildout, is expected to generate about 0.53 mgd ADWF and about 1.12 mgd wet weather flow.[2] (As of 2016, ADWF and AWWF for St. Helena were 0.48 mgd and 1.02 mgd, respectively (GHD, 2016).) Therefore, the WTRP is expected to have sufficient capacity to accommodate the increased wastewater production that would result from implementation of the Proposed Plan.

Given the City's commitment to meet the RWQCB's wastewater treatment requirements and the existing capacity of the WTRP to handle the projected increased wastewater resulting from the Proposed Plan, the risk of St. Helena exceeding the RWQCB's wastewater treatment requirements is less than significant.

Mitigation Measures

None required.

Impact 3.14-2: Potential development that could be allowed under the Proposed Plan could require construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

A significant impact would occur if development under the proposed Plan were to require construction of new water or wastewater treatment facilities or require the expansion of new facilities.

[2] ADWF is calculated using a demand factor of 80 gallons per capita per day (West Yost, 2007). AWWF is calculated using a demand factor of 300 gallons per day per residential unit and 30 gallons per day per employee (Napa County, 2007).

As discussed in Physical Setting above, the City of St. Helena obtains its water from three sources: Bell Canyon Reservoir, local groundwater wells, and surface water purchases from the City of Napa. Bell Canyon Reservoir water is treated at the Louis Stralla Treatment Plant, which typically operates at 3.5 million gallons per day (mgd) but has a capacity of 4.3 mgd. The City's groundwater is treated at the Stonebridge Well Complex, with typical production of 0.27 to 0.34 mgd. Napa's water is treated at three different treatment plants: the Barker Slough water is treated at the Edward I Barwick Jamieson Canyon Water Treatment Plan, which has a capacity of 20 mgd; Lake Hennessy water is treated at the Hennessey Water Treatment Plant, which has a capacity of 20 mgd; and Lake Milliken water is treated at the Milliken Water Treatment Plant, which has a capacity of 4.0 mgd (Napa County, 2013) and (City of St. Helena, 2016). Each of these treatment plants is currently operating within its permitted capacity.

Due to the City of St. Helena's Water Neutral Policy for Development, there would be no expected increase in water demand under the Proposed Plan. Under the policy, developers are required to offset all new water demands with water conservation retrofits or in-lieu payments for the City to undertake such retrofits. Therefore, the risk that development under the Proposed Plan would require new water treatment facilities is less than significant.

As discussed in Impact 3.14-1 above, the St. Helena Wastewaster Treatment and Reclamation Plant (WTRP) has permitted capacity to treat 0.5 mgd average dry weather flow (ADWF) and 2.8 mgd peak wet weather flow (PWWF), as shown in Table 3.14-5. Additionally, per the City's 2016 regulatory permit issued by the RWQCB, the City plans to increase wastewater treatment plant permitted capacity to 0.65 mgd by 2030 (City of St. Helena, 2018). The existing treatment facilities at the City of St. Helena WWTRP have sufficient capacity to treat ADWF flows up to and beyond 0.65 mgd when operated under design conditions; the upgrade the permitted capacity, they require restoration of existing primary treatment units, including the removal of solids and sludge buildup (Bennett Engineering Services, 2015). The Proposed Plan, at buildout, is expected to generate about 0.53 mgd ADWF and about 1.12 mgd wet weather flow. Therefore, with the previously-planned WTRP restoration and permitted capacity increase, the WTRP is expected to have sufficient capacity to accommodate the increased wastewater production that would result from implementation of the Proposed Plan.

Further, Proposed Plan policies require that the City continue wastewater treatment system upgrades to reduce the number and scale of implementation constraints on the recycled water program, which the City plans to implement in the future, and that the City continue to provide adequate wastewater service capacity (PF2.B and PF2.1).

Considering the existing capacity of water and wastewater facilities, the planned restoration of the treatment facilities at the WTRP, projected demand, and existing regulations, the risk that development under the Proposed Plan would require new wastewater treatment facilities would be less than significant.

Mitigation Measures

None required.

Impact 3.14-3 Potential development that could be allowed under the Proposed Plan would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

A significant impact would occur if development under the Proposed Plan would require or result in new storm water drainage facilities or the expansion of existing facilities that cause substantial environmental impacts either through construction or operation. Stormwater requirements for construction and new development for the cities of Napa and St. Helena, the Town of Yountville, and the County of Napa, which together formed the Napa County Stormwater Pollution Prevention Program (NCSPPP), are regulated under the SWRCB's Phase II General MS4 Permit, Order No. 2013-0001-DWQ and NPDES General Permit No. S000004 (California, 2013).

The City of St. Helena owns and operates a conveyance system of pipes and drains that discharge storm water to Sulphur Springs Creek, York Creek, and the Napa River. Storm drainage infrastructure includes the City maintained storm drain line, privately maintained storm drain lines, and a Caltrans storm drain line. The City Public Works Department maintains drain inlets and drain manholes. There are some existing localized deficiencies in the current storm drainage system, including that during heavy rains, the City storm drain outfall to Sulphur Creek can back up and cause flooding. The City's Stormwater Master Plan is over ten years old and requires updating (City of St. Helena, 2018), however, the St. Helena Municipal Code requires stormwater impact fees of all new development. This would help to ensure that development under the Proposed Plan would not exacerbate existing stormwater system deficiencies.

Further, while development under the Proposed Plan would mostly be redevelopment of previously developed sites, it would result in some pervious surfaces being converted to impervious surfaces. Buildout of the Proposed Plan is expected to generate an increase in impervious surfaces with the development of up to 300 new housing units and up to 900 new jobs in manufacturing, agriculture, retail, and the service industries, which would likely add new impervious sidewalks, pathways, parking areas and similar improvements. However, the Planning Area is subject to numerous measures aimed to reduce the load on storm water drainage facilities and minimize the need for new stormwater facilities. The California Model Water Efficient Landscape Ordinance and County Ordinance helps to prevent water waste for existing landscapes. The NCSPPP works to implement BMPs, measurable goals, and timetables for implementation of construction site stormwater runoff control and post-construction stormwater management. Any new development resulting from the Proposed Plan would be required to comply with the BASMAA Manual's design guidance for stormwater treatment, as required by Napa County's Phase II Small MS4 General Permit. These stormwater treatment guidelines would require new development within the Planning Area to detain storm runoff with bioretention facilities, minimize surface flow velocities, and make use of all applicable low impact design (LID) techniques to reduce stormwater flows. New development, during both construction and operations phases, would be required to comply with the City of St. Helena's Stormwater Management Standards, which require the preparation of a stormwater pollution prevention plan to slow stormwater during rain events. In addition, new inputs to the stormwater drainage system must comply with Title 16 of the Municipal Code, which requires retention ponds, drainage swales, and check dams as needed to reduce the off-site peak storm flow that projects contribute to the historic flow.

Further, policies and actions within the Proposed Plan would require new development to provide adequate drainage improvements and development setbacks and to incorporate stormwater BMPs, which would reduce peak flow rates and stormwater runoff volumes from smaller, more frequently occurring storms (CD1.5, LU1.1, OS1.1, OS1.A, OS1.B, PF3.1, PF3.4, PF3.A, PF3.B, and PF3.E). Projects would be required to show that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval (PF3.E). Extending stormwater drainage system utilities to the Urban Limit Line and updating the City's Stormwater Master Plan would ensure that the storm drain system has adequate capacity to convey storm flows without flooding, accounting for existing and future land uses and development (LU1.2, PF2.C, and PF3.D). The Proposed Plan would also promote preservation of open space and existing vegetation and require development setbacks, use of drought-tolerant and native plants, and proper use of pesticides and herbicides and seek to limit the use of impervious paving (CD4.2, CD4.A, CD1.B, CD4.A, OS1.1, OS1.B, OS1.H, OS1.L, OS3.D, and OS3.E). Open space conservation reduces impervious area, which may reduce stormwater runoff. Use of native plants would reduce irrigation requirements, which would reduce the volume of dry weather nuisance flows into the stormwater drainage system and/or receiving waters.

Additionally, any additional drainage facilities needed for stormwater flows not fully absorbed by these policies would be required to comply with all applicable environmental regulations, including project-level environmental review and NPDES permit regulations.

Compliance with existing regulations and implementation of Proposed Plan policies and with the existing federal, State, and local regulations identified above would reduce increases in stormwater velocity and volume to the maximum extent practicable, and compliance with SWRCB regulations would ensure that any new stormwater facilities that were built would not be environmentally harmful. Therefore, the impact of the Proposed Plan as related to the construction of new stormwater facilities would be less than significant.

Mitigation Measures

None required.

Impact 3.14-4 Potential development that could be allowed under the Proposed Plan would have sufficient water supplies available to serve the project from existing entitlements and resources and would not require new or expanded entitlements. (Less than Significant)

A significant impact would occur if existing water entitlements and resources were not able to serve development allowed under the Proposed Plan.

As discussed above in Impact 3.14-2, the City's Water Neutral Policy for Development ensures that future water demand does not exceed the current demand, for which the City has sufficient entitlements and resources. New development must offset any new water demand with water conservation retrofits or in-lieu payments for the City to conduct retrofits of existing facilities or homes.

In addition, the Proposed Plan contains myriad policies to reduce water demand, including promoting rainwater collection systems and water-efficient landscaping, adopting a Water Conservation Plan, promoting best practices for water conservation in new and existing housing, designing water rates to promote conservation, instituting audits and ensuring available staff time to implement water conservation policies, maintaining water pipes to reduce losses, and requiring low-water, drought-tolerant planting, (PF1.A, PF1.B, PF1.G, PF1.h, PF1.J, PF1.k, PF1.L, PF1.M, PF1.N, PF1.O, CD1.B, and CC4.H). The Proposed Plan also requires that new development be contingent on availability of water, prohibits water service to new customers outside city limits and requires the City to reduce its commitments to provide water to customers outside city limits, and requires the City to aggressively seek new water sources PF1.1, PF1.3, PF1.4, and PF1.C).

Taken together, Proposed Plan policies and the City's existing Water Neutral Policy for New Development would reduce any impacts to water demand from new development to less than significant levels.

Mitigation Measures

None required.

Impact 3.14-5: Potential development that could be allowed under the Proposed Plan would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the projected demand in addition to the provider's existing commitments. (Less than Significant)

As discussed in Impacts 3.14-1 and 3.14-2 above, the St. Helena Wastewaster Treatment and Reclamation Plant (WTRP) has permitted capacity to treat 0.5 mgd average dry weather flow (ADWF) and 2.8 mgd peak wet weather flow (PWWF), as shown in Table 3.14-5. Additionally, per the City's 2016 regulatory permit issued by the RWQCB, the City plans to increase wastewater treatment plant permitted capacity to 0.65 mgd by 2030 (City of St. Helena, 2018). The existing treatment facilities at the City of St. Helena WTRP have sufficient capacity to treat ADWF flows up to and beyond 0.65 mgd when operated under design conditions; the upgrade the permitted capacity, they require restoration of existing primary treatment units, including the removal of solids and sludge buildup (Bennett Engineering Services, 2015). The Proposed Plan, at buildout, is expected to generate about 0.53 mgd ADWF and about 1.12 mgd wet weather flow. And as the WTRP serves only areas covered by the Proposed Plan, it has no other existing commitments that would preempt service to new development. Therefore, with the previously-planned WTRP restoration and permitted capacity increase, the WTRP is expected to have sufficient capacity to accommodate the increased wastewater production that would result from implementation of the Proposed Plan. The impact would therefore be less than significant.

Mitigation Measures

None required.

Impact 3.14-6: Potential development that could be allowed under the Proposed Plan would be served by a landfill with sufficient capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

Development allowed by the proposed Plan would increase the amount of solid waste generated by future residential, commercial, industrial, and other land uses, but this increase would not exceed the capacity of the Clover Flat Landfill or require construction of new landfill facilities. The landfill is permitted to receive 600 tons per day, or 219,000 tons per year, but currently only receives less than a quarter of that (50,000 tons per year). The approximately 13 percent projected increase in population and approximately 17 percent projected increase in jobs over the planning horizon, would therefore not result in solid waste generation that exceeds capacity at the Clover Flat Landfill (Abreu, 2015 and Abreu, 2018). Further, the Proposed Plan contains numerous policies aimed at reduction and diversion from landfills of solid waste, including establishing city-wide composting and a Waste Management Master Plan (PF4.1, PF4.A, PF4.B, CC3.1, CC3.A, CC3.B and CC3.F).

Additionally, all new development resulting from implementation of the Proposed Plan would be required to comply with the CALGreen Code, as discussed in Regulatory Setting above, requiring diversion of at least 65 percent of construction waste from landfills.

Given Clover Flat Landfill's significant remaining capacity, existing waste reduction regulations, and the comparatively small increase in residents and employees envisioned by the Proposed Plan, the collection, transfer, recycling, and disposal needs of the projected population increase under the Proposed Plan would not result in adverse impacts on landfill facilities. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Impact 3.14-7: Potential development that could be allowed under the Proposed Plan would comply with federal, state, and local statutes or regulations related to solid waste. (Less than Significant)

A significant impact would occur if development under the Proposed Plan would violate any federal, State, or local statutes or regulations related to solid waste. As described under the Physical Setting section, waste collection services in the Planning Area are provided by the Upper Valley Disposal & Recycling Service (UVDS). UVDS collects and transports solid waste, including trash, recyclables, green waste, and restaurant food composting materials. Hazardous waste is handled by Napa County, which operates Napa-Vallejo Household Hazardous Waste Collection Facility in American Canyon.

Federal, State, and local statutes and regulations related to solid waste include AB 939, AB 1327, SB 1016, AB 341, and AB 1836, as well as Title 8 of the City of St. Helena Municipal Code. St. Helena has met and exceeded its waste reduction targets over the past decade. In 2016, while the resident target disposal rate was set at 7.5 pounds per day (PPD) and the employee target disposal

rate was set at 10.9 PPD, the Upper Valley Waste Management Agency, in which the City of St. Helena participates, achieved resident and employee disposal rates of 4.6 PPD and 5.0 PPD, respectively. These low disposal rates were achieved through 44 different diversion programs, including city-wide recycling (CalRecycle, 2016).

The Proposed Plan contains numerous policies and implementing actions promoting recycling, composting, and other methods of managing and reducing waste, including developing a Waste Management Master Plan, requiring installation of recycling receptacles in public areas, establishing incentives to increase recycling and composting, and establishing a city-wide composting program (PF4.1, PF4.A, PF4.B, CC3.1, CC6.1, CC3.A, CC3.B, CC3.C, CC3.D, CC3.E, CC3.F, and CC6.H). These provisions would help ensure that the city continues to achieve compliance with AB 939, AB 341, AB 1826 and related waste reduction targets. The Proposed Plan does not contain any policies that would conflict with any of the requirements for adequate waste receptacles, contracts, or schedules in the local ordinances or goals of the State regulations. Further, any development of future land uses under the Proposed Plan would be required to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, the impact would be less than significant.

Mitigation Measures

None required.

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3.15 Impacts Not Potentially Significant

Some of the detailed analysis of the environmental issues normally required by CEQA is excluded from this EIR because only those environmental issues that were potentially impacted by the Proposed Plan are analyzed. CEQA requires that an EIR provide a statement indicating why environmental issues normally requiring analysis by CEQA were determined to be not significant and therefore not discussed in detail. Forestry Resources and Mineral Resources are the only issue areas not addressed in detail in the setting and impacts sections.

Forestry Resources

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));**

Criterion 2: **Result in the loss of forest land or conversion of forest land to non-forest use; or**

Criterion 3: **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.**

Forest land is defined as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits (Public Resources Code Section 12220[g]). Timberland is defined as land, other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees (Public Resources Code Section 4526). Timberland Production Zone designates an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses (Government Code section 51104[g]).

While portions of the Planning Area support tree cover—including land along the Napa River, Sulphur Creek, and York Creek, and in Study Area 3 north of the city—these lands are interspersed

with development and are not managed for forest resources or used for commercial timber production. While these areas are relevant to the Planning Area's biological resources, and are evaluated in terms of special-status species, sensitive habitats, and related regulations and plans in Section 3.4: Biological Resources, they do not represent forestry resources that would be analyzed under this topic. Additionally, there are no areas designated as Timberland Production Zone in the Planning Area. Therefore, the Proposed Plan would have no impact on forest resources and the topic is not analyzed further.

Mineral Resources

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Plan would:

Criterion 1: **Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or**

Criterion 2: **Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.**

The Planning Area does not have known mineral resources of regional or statewide value, or locally-important mineral resource recovery sites that are delineated on a land use plan. The California Geological Survey does not identify any mineral resource zones in the Planning Area (Stinson, Manson, & Plappert, 1987), nor does it identify any active or permitted mining or land designated as significant for aggregate resources in the Planning Area (Miller & Busch, 2013). Therefore, the Proposed Plan would have no impact on mineral resources. The topic is not analyzed further.

4 Alternatives Analysis

The Proposed Plan is described and analyzed in Chapters 3.0 through 3.15 of this EIR with an emphasis on potentially significant impacts and recommended mitigation measures to avoid those impacts. The California Environmental Quality Act (CEQA) Guidelines require the description and comparative analysis of a range of alternatives to the Proposed Plan that could feasibly attain the objectives of the Proposed Plan, while avoiding or substantially lessening potential impacts. CEQA Guidelines also require that the environmentally superior alternative be designated. If the alternative with the least environmental impact is the No Project Alternative, then the EIR must also designate the next most environmentally superior alternative.

The following discussion is intended to inform the public and decision makers of the feasible alternatives that would avoid or substantially lessen significant effects of the Proposed Plan, and to compare such alternatives to the Proposed Plan. Section 15126.6 of the CEQA Guidelines states that:

> *An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

The following discussion includes an evaluation of two alternatives to the Proposed Plan. CEQA Guidelines Section 15126.6(e) requires consideration of a "No Project Alternative" in every EIR. In the case of the Proposed Plan, the No Project Alternative is a scenario in which the Proposed Plan is not adopted and implementation of the existing General Plan continues through 2040. Consistent with CEQA Guidelines Section 15126.6(a), the other alternative selected for consideration in this analysis is a Transportation Network Enhancement Alternative, which would feasibly attain the objectives of the Plan, as listed in Chapter 2, Project Description, but would avoid or substantially lessen any of the significant effects of the Plan. Specifically, the Transportation Network Enhancement Alternative would reduce significant and unavoidable impacts related to vehicle congestion on State Route 29 (SR-29) in St. Helena.

4.1 Description of Alternatives

CEQA Section 15126.6(f) states that alternatives in an EIR should be governed by a "rule of reason" and requires the EIR to set forth alternatives necessary to permit a reasoned choice, that would avoid or substantially lessen any significant effects, and that could feasibly attain most of the project objectives. As such, the alternatives analyzed are as follows:

NO PROJECT ALTERNATIVE

Consistent with Section 15126.6(e)(2) of the CEQA Guidelines, the No Project Alternative represents what would be reasonably expected to occur in the foreseeable future if the Proposed Plan were not adopted and the City's current General Plan was left unchanged and in use. This alternative would retain all current land use designations and definitions from the current General Plan as amended to date, and future development in the Planning Area would continue to be subject to existing policies, regulations, development standards, and land use designations of the existing St. Helena General Plan. Specifically, there would be no new Mixed Use land use designation, the Medium Density Residential density range would remain 5.1 to 12.0 units per acre, and the High Density Residential density range would remain 12.1 to 20.0 units per acre. All Proposed Plan change areas as identified in the Proposed Plan would retain their existing 1993 General Plan designations. Policies concerning topics such as transportation, economic development, parks, open space, the environment, health, and housing would also remain unchanged, and there would be no alterations to the Urban Limit Line.

Overall, the No Project Alternative is projected to result in approximately 460 new residents, 200 housing units, and 780 new jobs in St. Helena by 2040. Growth in the Study Areas would be the same as under the Proposed Plan. The No Project Alternative is depicted in Figure 4.1-1.

TRANSPORTATION NETWORK ENHANCEMENT ALTERNATIVE

California SR-29/SR-128 is the principal arterial in St. Helena, carrying regional traffic through Napa Valley and also serving as the community's Main Street. Today, this roadway experiences significant peak hour and peak period congestion, which is projected to worsen with cumulative growth in the region through 2040. Under this alternative, the City would undertake improvements to the transportation network to facilitate access through the community for local residents traveling by all modes of transportation. Specifically, Oak Avenue would be extended south from its current terminus at Mitchell Lane to Grayson Avenue in order to relieve vehicle congestion and queuing on SR-29 and to improve bicycle and pedestrian access to St. Helena Elementary, Robert Louis Stevenson Middle School, and St. Helena High School.

The new roadway would be constructed as a two-lane Downtown/Mixed Use Street with bicycle lanes and sidewalks, consistent with the City's Engineering Standards, and a bridge would be constructed over Sulphur Creek. The roadway would be designed to provide a high-quality bicycle and pedestrian connection to Downtown St. Helena, with a full Class I path along the west side of the street. Traffic calming measures, such as speed lumps, bulb outs, and/or chicanes would be constructed to limit travel speeds between intersections and optimize safety for all roadway users. Connection to the Vine Trail would also be provided.

Under this alternative, citywide capital improvements to expand the existing bicycle network would still be constructed, as under the Proposed Plan to provide safe, convenient access to destinations throughout the community and to encourage the use of bicycles as a non-automotive means of transportation. Additionally, the proposed Mixed Use land use designation would still be applied to encourage a mix of uses at infill locations in central St. Helena and provide for housing opportunities in close proximity to services and retail. Other policies and actions would be as under the Proposed Plan. Overall, as with the Proposed Plan, the Transportation Network Enhancement Alternative would result in approximately 750 new residents, 335 housing units, and 935 new jobs in St. Helena by 2040. The Transit Network Enhancement Alternative is depicted in Figure 4.1-2.

Table 4.2-1: Comparison of Key Characteristics, presents a summary of the residential capacity and reasonably anticipated non-residential development on opportunity sites in the Transportation Network Enhancement Alternative.

Table 4.2-1: Comparison of Key Characteristics

	City of St. Helena			*Study Areas*			*Planning Area Total*		
	Population	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*
Existing (2018)	5,900	2,700	5,400	600	200	500	6,400	2,900	5,900
Proposed Plan (2040)	6,600	3,100	6,400	700	200	600	7,300	3,300	7,000
Transportation Network Enhancement Alternative (2040)	6,600	3,100	6,400	700	200	600	7,300	3,300	7,000
No Project Alternative (2040)	6,260	2,900	6,180	700	200	1,100	6,960	3,100	7,280

Source: Dyett & Bhatia, 2018.

Figure 4.1-1

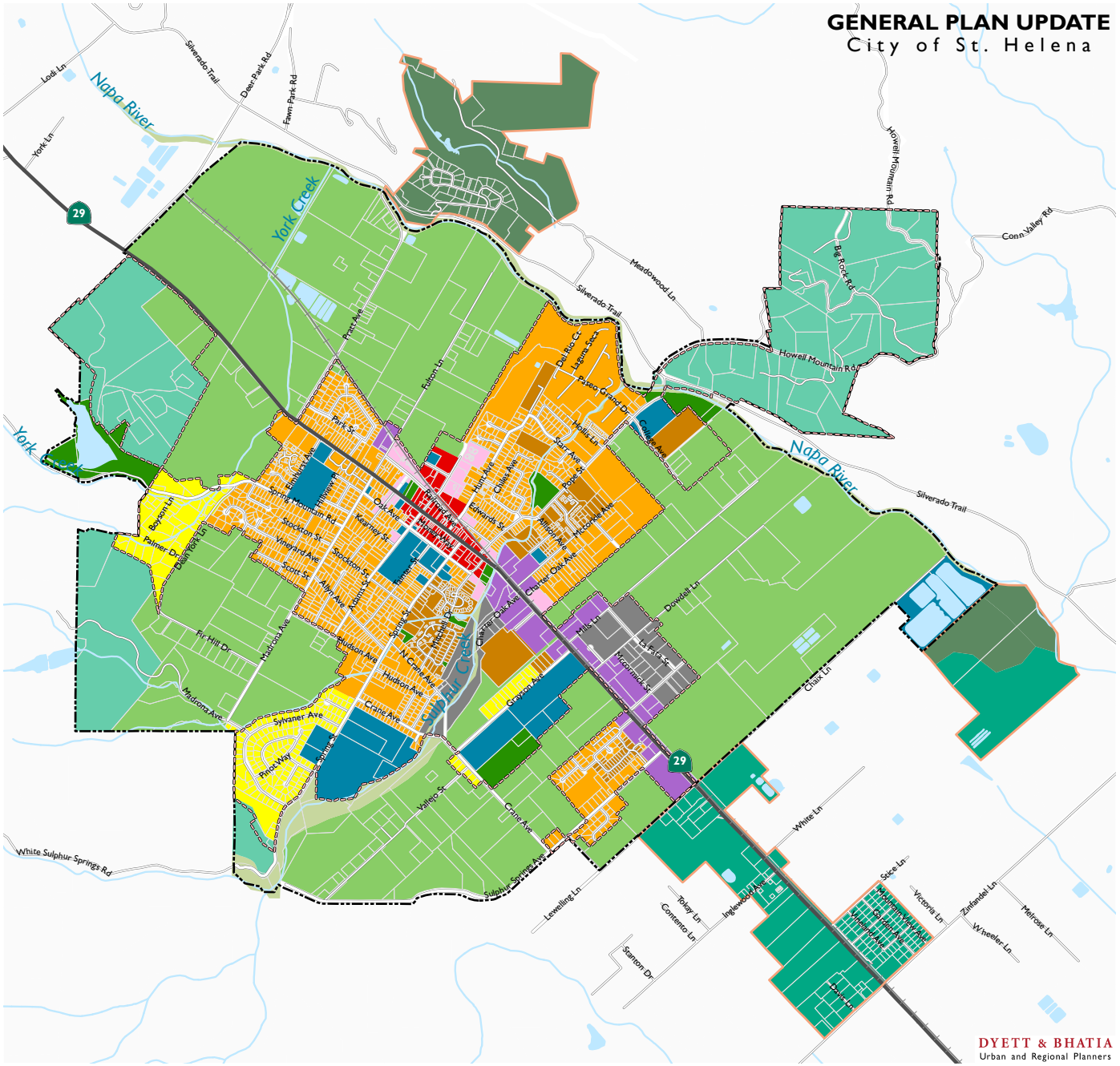
No Project Alternative

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Central Business
- Office
- Service Commercial
- Industrial
- Public & Quasi-Public
- Agriculture
- Parks
- Open Space
- Woodlands & Watershed

Napa County General Plan

- Agricultural Resource
- Agriculture, Watershed and Open Space

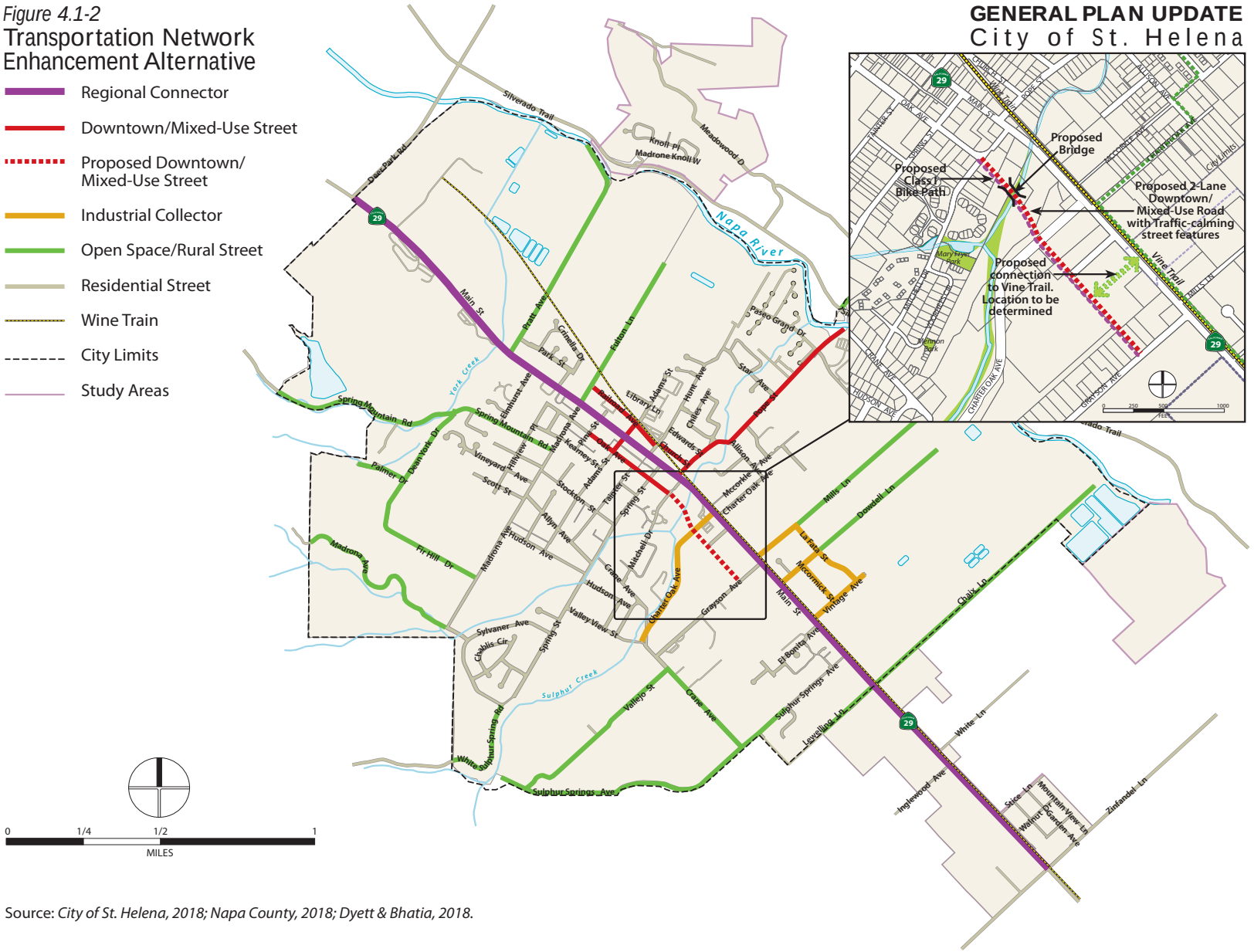
- Railroad
- Water Features
- Urban Limit Line
- Study Areas
- City of St. Helena



Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

Figure 4.1-2

Transportation Network Enhancement Alternative



Source: *City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018.*

4.2 Comparative Impact Analysis of Alternatives

This section provides a qualitative analysis of the potential environmental impacts of each alternative relative to existing conditions, and compares their performances with that of the Proposed Plan. The discussions are arranged by resource topic and address the same significance criteria used to evaluate the Proposed Plan in Chapter 3 of this EIR.

AESTHETICS

There are important viewsheds within the Planning Area, such as those of historic resources, vineyards, and hillsides, that contribute to the aesthetic quality of St. Helena. The No Project Alternative would maintain all land use designations from the 1993 General Plan, and the Transportation Network Enhancement Alternative would include the land use designations in the Proposed Project, including proposed designations in the 13 change areas. Development under both alternatives would allow for development in areas in the ULL currently used for agriculture, which could affect the rural visual character in the central portion of the city. As with the Proposed Plan, both alternatives would be subject to the St. Helena design review process, and both alternatives would include policies to preserve scenic resources and visual character. Thus, the alternatives would be expected to have a less than significant impact related to scenic vistas. The No Project Alternative may have the least impact as it proposes fewer changes to existing densities in the central portion of the city. The Transportation Network Enhancement Alternative would have a similar impact as the Proposed Plan.

As discussed in Section 3.1: Aesthetics, there are no State scenic highways in the Planning Area, although SR-29 is eligible for the designation. As with the Proposed Project, neither alternative would have a significant impact on resources within a State scenic highway.

Plan or proposed policies, impacts would be less than significant for both alternatives. The No Project Alternative may have the least impact as it proposes fewer changes to existing densities in the central portion of the city. The Transportation Network Enhancement Alternative may be expected to have a greater impact than the No Project Alternative or the Proposed Plan, as it would propose additional development in the form of the Oak Avenue roadway extension.

Each of the alternatives would accommodate new development that could generate additional light and glare in the Planning Area. If future development under the Transportation Network Enhancement Alternative included features such as lighted signs or streetlights, it could generate more light and glare than the No Project Alternative or the Proposed Plan in areas where new roads and commercial buildings will be developed. As with the Proposed Plan, the Transportation Network Enhancement Alternative would include policies and implementing actions such as creating a Dark Sky ordinance to further limit the negative effects of light pollution on wildlife and aesthetics, as well as ensuring that future lighting is be shielded and directed downwards to minimize glare. Additionally, the City's Municipal Code includes prohibition of lighting that would negatively impact residential development and roadways. The City's design review process would further reduce light and glare for new construction or redevelopment projects through a discretionary process whereby projects must show compatibility with surrounding areas. Thus, while the Transportation Network Enhancement Alternative would, with the same policies as the Proposed Plan, have a less than significant impact regarding light and glare, it could have a greater

impact than the Proposed Plan given the addition of new lighted signs and streetlights. . As the No Project Alternative would allow for similar intensities of development as the Proposed Plan, but would not include the proposed Dark Sky ordinance, it could have a greater impact regarding light and glare than the Proposed Plan and the Transportation Network Enhancement Alternative.

AGRICULTURAL RESOURCES

The Proposed Plan would result in a significant and unavoidable impact related to the potential conversion of approximately 118.5 acres of Farmland land within the City limit and SOI to urban uses. As with the Proposed Plan, the No Project Alternative also includes urban land use designations in areas of Important Farmland, which would allow for new development that would result in farmland conversion. While the No Project Alternative would introduce Agricultural Resource and Agricultural, Watershed, and Open Space land use designations in north and southeast portions of the Planning Area, it would also result in the possible conversion of Farmland to urban uses within the Urban Limit Line. Similar to the Proposed Plan, this alternative would result in a significant and unavoidable impact, given that agricultural land is a finite and irreplaceable resource that is not directly mitigable, aside from preventing development altogether. However, as the No Project Alternative would not involve the same minor adjustments to the ULL as the Proposed Plan, this alternative would result in the conversion of less Farmland within the City limit and SOI to urban uses than under the Proposed Plan.

Under the Transportation Network Enhancement Alternative, the same land use designations and policy framework as under the Proposed Plan would apply and as such, impacts related to the conversion of Farmland would also be significant and unavoidable. However, the Transportation Network Enhancement Alternative would also involve extending Oak Avenue south through additional parcels of Prime Farmland and Farmland of Statewide Importance, as shown on Figure 3.2-2, and would thus result in greater impacts related to the conversion of Farmland to urban uses than the Proposed Plan.

As with the Proposed Plan, neither the No Project Alternative nor the Transportation Network Enhancement Alternative would conflict with Napa County's zoning for agricultural uses. Both alternatives and the Proposed Plan would designate all areas within the city that are subject to Williamson Act contracts as Agriculture. As such, both alternatives would result in less than significant impacts related to conflicts with existing agricultural zoning and Williamson Act contracts.

Similarly, as with the Proposed Plan, neither the No Project Alternative nor the Transportation Network Enhancement Alternative would include land use designations or policies and actions applicable to the unincorporated Study Areas and would thus not directly convert adjacent unincorporated agricultural lands to non-agricultural uses. However, intensification of urban development and conversion of farmland within the city could indirectly increase development pressures in these areas given their access to the city's jobs, services, and other amenities. As with the Proposed Plan, existing regulations including the County General Plan and measures J and P would reduce the risk of Farmland conversion to non-agricultural uses. Associated impacts from the No Project Alternative and the Transportation Network Enhancement Alternative would therefore be less than significant.

AIR QUALITY

Air quality impacts are evaluated on a cumulative basis due to the regional characteristics of air quality and air pollution problems. Impacts under the Transportation Network Enhancement Alternative would be similar to those under the Proposed Plan as the two share policies that would protect or improve air quality. Due to these, the Transportation Network Enhancement Alternative would be expected to result in similar less than significant impacts regarding implementation of the Bay Area Air Quality Management District (BAAQMD) air quality plans and objectionable odors, as well as similar significant and unavoidable impacts related to the violation of air quality standards and the cumulatively considerable increase of criteria pollutants.

Along with the Proposed Plan, both alternatives would have less than significant impacts with mitigation regarding the exposure of sensitive receptors to substantial pollutant concentrations. Under the Proposed Plan, and therefore the Transportation Network Enhancement Alternative, construction activities would be dispersed intermittently over a 22-year period and would not expose nearby sensitive receptors to a continuous source of pollution. However, without specific details on the locations of building footprints or their construction schedules, a quantitative evaluation of potential health risk impacts is not possible. Therefore, mitigation measures that would mitigate air quality impacts from construction as they affect the community are recommended in order to reduce impacts on sensitive receptors to less than significant levels. Implementation of Mitigation Measure AQ-1 in the Proposed Project would be required to reduce the impact of the No Project Alternative to a less than significant level, as development on commercial and industrial facilities could expose nearby receptors to substantial air pollutant concentrations.

Although future development under the Proposed Plan and the Transportation Network Enhancement Alternative would be required to comply with applicable air quality plans, there is no guarantee emissions would be mitigated below BAAQMD thresholds. Thus, there would be a significant and unavoidable impact with regards to violating air quality standards. The No Project Alternative, however, would have a less than significant impact as the increase in emissions would be expected to be below BAAQMD thresholds; the No Project Alternative would result in a marginal (5 percent) increase in VMT over existing conditions compared to a 25 percent increase under the Proposed Plan, and therefore would not contribute to air quality standards for traffic-related air pollutants such as ROG, $PM_{2.5}$, and O_3.

The No Project Alternative would not include the air quality policies of the Proposed Plan, though this alternative would retain many of the current General Plan policies that could reduce air quality impacts. Given that population projections under the No Project Alternative would be consistent with ABAG's projections for the City of St. Helena and VMT would increase by only 5 percent, air pollution generated by an increased population and traffic under this alternative would be consistent with future estimates of regional air quality plans. Therefore, the No Project Alternative would have a less than significant impact on the obstruction of air quality plan implementation. While population projections under the Transportation Network Enhancement Alternative and Proposed Plan would exceed ABAG's projections for St. Helena, per capita emissions under both plans in 2040 would be lower than forecasted under regional air quality plans such as the Clean Air Plan, as these plans do not assume the sustainability policies and transit-oriented development patterns that would be implemented under each. Therefore, the Transportation Network

Enhancement Alternative would have a less than significant impact on the obstruction of air quality plan implementation.

Review of development under both the No Project Alternative and the Transportation Network Enhancement Alternative using BAAQMD's odor screening distances during future CEQA review and compliance with BAAQMD Regulation 7 and California Green Building Code would discourage siting sensitive receptors in proximity to odor sources, thus ensuring that odor impacts are minimized and are less than significant. Additionally, the Transportation Network Enhancement Alternative would include Proposed Plan policies and implementing actions that discourage the siting of residential uses and sensitive receptors in close proximity to sources of odors.

Both the Proposed Plan and the Transportation Network Enhancement Alternative would result in a cumulatively considerable net increase of criteria pollutants. Current nonattainment status for O_3, $PM_{2.5}$, and PM_{10} pollutants and projected ROG and PM_{10} emissions at buildout in combination with past, present, and reasonably foreseeable projects elsewhere within the Air Basin indicate that the Proposed Plan would result in a significant and unavoidable cumulative impact as ROG is a precursor of O_3 and $PM_{2.5}$ and increased emissions of PM_{10} over time would have a cumulatively considerable effect on attainment status. The No Project Alternative, similarly, would involve extensive site preparation activities, earthmoving activities, or truck travel over unpaved roads, causing exceedance of the State Ambient Air Quality Standard for PM_{10}, which already are already regularly exceeded. However, with implementation of Mitigation Measure AQ-1 strategies regarding dust abatement, the impact would be reduced to a less than significant level.

BIOLOGICAL RESOURCES

The Transportation Network Enhancement Alternative would include the same policies as the Proposed Plan for the protection of special-status species, sensitive habitats, wetlands, and wildlife corridors; for cooperating with other agencies to protect biological resources; and for supporting any relevant Habitat Conservation Plans (HCPs). Implementation of the Transportation Network Enhancement Alternative would result in a roadway extension crossing Sulphur Creek, which could impact special-status species, sensitive habitats, and wildlife corridors along the creek bed. However, this alternative requires a bridge crossing the creek and would not directly impact the wildlife corridor connecting the west portion of Sulphur Creek to the Napa River. Development of this bridge could have a direct or indirect impact if it resulted in the degradation or removal of habitat for special-status species. However, multiple policies and implementing actions retained from the Open Space and Conservation chapter of the Proposed Plan would require protection of these habitats. Therefore, impacts from implementation of the Transportation Network Enhancement Alternative on special-status species, sensitive habitats (including riparian habitats), wetlands, wildlife corridors, and compatibility with the Pacific Gas & Electric (PG&E) Habitat Conservation Plan (HCP) would all be similar to those of the Proposed Plan and thus less than significant. The City of St. Helena Municipal Code Chapter 12.24 provides policies ensuring tree preservation, but the Napa County General Plan does not currently have a local ordinance protecting biological resources. As there are currently no policies or ordinances protecting biological resources in the County, there would be a less than significant impact from the Transportation Network Enhancement Alternative, similar to the Proposed Plan.

The No Project Alternative includes some policies to protect biological resources, but not the full range included in the Proposed Plan and Transportation Network Enhancement Alternative. In particular, it would not include the proposed Policy OS1.3, which protects contiguous corridors of riparian vegetation along the Napa River and its tributaries to ensure that sensitive species and habitats, and wildlife corridors are not impacted by future development, or policy OS4.1 addressing the protections of tree resources in both developed and undeveloped areas. The No Project Alternative also would not include all of the Proposed Plan's implementation actions, which would require new development to minimize impact to biological resources through actions including but not limited to work plans for restoring sensitive habitat degraded by agriculture, biological assessments at special-status species habitat, management plans to restore sensitive habitat, and avoiding construction during nesting season through scheduling or a pre-construction survey to achieve policy goals. The No Project Alternative would include policies from the 1993 General Plan related to maintaining and enhancing biodiversity, protecting special-status species and their habitats, conserving habitats for native species, and protecting connectivity for wildlife movement. Therefore, the No Project Alternative would include policies protecting biological resources but would not be as comprehensive and protective as the Proposed Plan and Transportation Network Enhancement Alternative.

As both alternatives include policies to ensure the protection of riparian habitat and to ensure that future development mitigates impacts to wildlife species, there would be a less than significant impact to special-status species and sensitive habitats. The No Project Alternative would not include policies designed to protect wetlands, thus could result in a significant and unavoidable impact. The Transportation Network Enhancement Alternative, however, includes policies that propose avoiding potential impacts on jurisdictional wetlands, as well as protecting habitats around the city's waterways. Therefore, impacts related to wetlands under the Transportation Network Enhancement Alternative would be considered less than significant.

The No Project Alternative includes policies from the 1993 General Plan that would protect wildlife corridors in the Planning Area (6.2.1, 6.2.2, 6.2.4, and 6.2.5), thus related impacts would be less than significant. However, because the Proposed Plan and Transportation Network Enhancement Alternative would go farther in protecting and restoring riparian habitats along the City's rivers and creeks, they would likely have less of an impact than the No Project Alternative. As with the Proposed Plan, the Transportation Network Enhancement Alternative would have a less than significant impact regarding policies and ordinances protecting biological resources, and no impact regarding HCPs. However, because the No Project Alternative would not specifically state that the City should support HCP implementation, it could be considered to have a slightly greater impact than the Transportation Network Enhancement Alternative.

CULTURAL, HISTORIC, AND TRIBAL RESOURCES

The land use plan, buildout projections, and policy framework for the Proposed Plan and the Transportation Network Enhancement Alternative are similar, with the exception of the extension of Oak Avenue to Grayson Avenue under the Transportation Network Enhancement Alternative. Construction of this road could impact cultural, historic, and tribal resources in the Planning Area. As with the Proposed Plan, implementation of policy HR1.5 would require an assessment and subsequent studies of the potential presence of archaeological, tribal cultural and paleontological resources, incorporating study recommendations as project conditions of approval. Therefore, like

the Proposed Plan, the Transportation Network Enhancement Alternative would have less than significant impacts on archaeological, tribal cultural, and paleontological resources, and the proposed change is not located in a historic district. The No Project Alternative includes policies to preserve historic sites and cultural resources, but it does not include policies pertaining to paleontological resources, nor does the No Project Alternative include a goal or policies specifically protecting Native American heritage or tribal cultural resources. Further, the No Project Alternative would not promote a compact, urban development pattern to the same extent as the Proposed Plan or the Transportation Network Enhancement Alternative. Therefore, while the No Project Alternative's impacts on historical and cultural resources would be less than significant—similar to the Proposed Plan, it could not guarantee that impacts on paleontological and tribal cultural resources could be reduced below a level of significance. Therefore, the No Project Alternative would be considered to have potentially significant impacts on paleontological and tribal cultural resources. State regulations would be sufficient to reduce the potential impacts to human remains from both alternatives to less than significant, similar to the Proposed Plan.

ENERGY, GREENHOUSE GASES, AND CLIMATE CHANGE

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and consist of, but are not limited to, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). These three gases are the most common GHGs that result from human activity. The global warming potential of GHGs is expressed in terms of CO_2 equivalents (CO_2e) and is typically quantified in metric tons (MT) or millions of metric tons (MMT).

Implementation of the Proposed Plan, Transportation Network Enhancement Alternative, and No Project Alternative would all generate direct and indirect GHG emissions. Sources of direct emissions would include mobile vehicle trips, natural gas combustion, and landscaping activities. Indirect emissions would be generated by electricity consumption, waste and wastewater generation, and water use. Using BAAQMD's CEQA Guidelines, the efficiency metric for general plans has been applied for the BAAQMD jurisdictional region, resulting in an emissions target of 2.3 $MTCO_2e$ per service population by 2040. As the Transportation Network Enhancement Alternative and Proposed Plan would generate significant direct and indirect GHG emissions, proposed policies would help reduce the significance. VMT would increase by 5 percent over existing conditions under the No Project Alternative, compared to a 25 percent increase with the Proposed Plan, and therefore, a similar increase with the Transportation Network Enhancement Alternative. Policies CC1.1, CR3.3, and CR3.6 would provide an improved pedestrian network, which would encourage people to walk more and drive less, causing a reduction in VMT. Policy 1.3 seeks to further transit improvement efforts by enhancing bus and para-transit services, providing shuttle services, and partnering with Napa County to increase transit service and ridership, all of which could reduce VMT. To reduce the Proposed Plan and the Transportation Network Enhancement Alternative's GHG emissions in 2040, Mitigation Measure GHG-1 is recommended, which includes strategies derived to reduce GHG emissions to a level consistent with BAAQMD's efficiency threshold. However, given that additional State and federal actions would be necessary to achieve the 2050 target, and given that, at this time, there are no post-2030 State or federal measures in place that would assist the City in achieving the efficiency target in 2040, even with implementation of Mitigation Measure GHG-1, impacts related to GHG emissions would be considered significant and unavoidable.

Currently, the City of St. Helena does not have a Climate Action Plan that addresses community GHG emissions reductions. The Proposed Plan and Transportation Network Alternative would propose the adoption and implementation of a Climate Action Plan with specific and quantifiable goals to reduce emissions, as well as indicators to track progress; however, the No Project Alternative has no such policy. Thus, impacts related to GHG emissions for the No Project Alternative are considered even more significant than the Transportation Network Enhancement Alternative and unavoidable.

Even accounting for State and federal standards and for policies within the Proposed Plan, and therefore the Transportation Network Alternative, that can be quantified, the resulting 2040 per capita emissions would still be greater than the BAAQMD efficiency target and the CARB Scoping Plan target. This means that, absent additional measures at the State level, development under the Proposed Plan would conflict with CARB's 2017 Scoping Plan, AB 32, EO S-03-05, or BAAQMD's CEQA Guidelines, as the City does not have direct control over certain aspects of transportation emissions. Given that, at this time, there are no post-2030 State or federal measures that would assist the City in achieving the efficiency target in 2040 for either alternative, even with implementation of Mitigation Measure GHG-1, the potential exists for the Proposed Plan to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact for conflicting with a plan, policy, or regulation remains significant and unavoidable for both alternatives and the Proposed Plan.

The Transportation Network Enhancement Alternative has the same land use development pattern and buildout projections as the Proposed Plan with the exception of one road extension within the City's ULL. Any differences in potential impacts would result from the construction of the roadway extension and new development along the road. It is assumed that the types of land uses envisioned under the Proposed Plan and both alternatives would involve construction activities typical of most land use developments within the Planning Area and in the San Francisco Bay Area Air Basin (SFBAAB). Because construction emissions from both mobile and stationary sources are considered to be relatively short-term emissions that would cease once construction of a project is complete, they would represent a relatively short demand on local and regional fuel supplies that would be easily accommodated. Therefore, construction activities associated with both alternatives and the Proposed Plan would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy. The impact would be less than significant.

Through implementation of Proposed Plan policies, the Proposed Plan and the Transportation Network Enhancement Alternative would support the CARB passenger vehicle GHG emissions reduction targets through measures that would reduce VMT in the Planning Area. Additionally, all future development under both alternatives and the Proposed Plan would be required to comply with the latest CBC requirements, including CBC Energy Efficiency Standards, as well as all federal, State, and local rules and regulations pertaining to energy consumption and conservation. Therefore, the impact for both alternatives, as well as the Proposed Plan, would be less than significant with regards to conflicts with energy conservation regulations.

GEOLOGY, SOILS, AND SEISMICITY

As discussed in Section 3.7: Geology, Soils, and Seismicity, the potential for violent seismic ground shaking in the Planning Area is low. There are no designated Alquist-Priolo Earthquake Fault Zones within the Planning Area that could create a significant impact through violent groundshaking or fault rupture. However, there are a few smaller active local faults near the Planning Area, including the Rodgers Creek, Maacama, Hunting Creek, or West Napa faults, that could contribute to groundshaking and seismically-induced landslides. Any potential risk from seismic hazards would be related to fault rupture and groundshaking, liquefaction, or—in the Planning Area's few sloped areas—landslides. As with the Proposed Plan, development under both the Transportation Network Enhancement Alternative and the No Project Alternative would be subject to the requirements of the California Building Code (CBC), which would minimize potential impacts related to groundshaking and landslides due to stringent building standards. The No Project Alternative only states that a soils and geologic report be submitted for developments in hillside areas, whereas the Transportation Network Enhancement Alternative would ensure a report in any area with potential geologic hazards. Compared to the Transportation Network Enhancement Alternative, the No Project Alternative could have a greater overall impact on exposure to geologic hazards as it does not include the additional precaution regarding geologic hazard reports. However, both alternatives would include policies and implementing actions that would prohibit development in areas of geologic concern until mitigating measures are taken, reducing impacts due to fault rupture to a less than significant level.

As with the Proposed Plan, new development under the Transportation Network Enhancement or No Project Alternative would likely include earthwork activities that could expose soils to the effects of erosion or topsoil loss. In general, development under either alternative would be subject to the same regulations—such as the National Pollutant Discharge Elimination System (NPDES) permit and local storm water runoff and pollution control requirements. Both alternatives would include the same policy regarding a soils and geologic report before development, as well as a policy requiring prompt revegetation of drought-tolerant plant species on development areas where excess water might induce erosion, which would similarly reduce any potential impacts to less than significant.

As with the Proposed Plan, new development under the Transportation Network Enhancement or No Project Alternatives would be constructed on several soil types with expansive properties. In general, development under both alternatives would be subject to the requirements of the CBC, which regulates analysis of expansive soils and grading activities. Additionally, both alternatives would include the same policy requiring a soils and geologic report before development, which would reduce any potential impacts of unstable soil foundations, landslide, lateral spreading, subsidence, liquefaction, or collapse on new structures to less than significant.

Both alternatives would be subject to the same regulations for development in areas with soil that is incapable of supporting septic tanks—such as the Napa County Health and Human Services Department standards and requirements. However, the majority of existing development within St. Helena does not rely on septic systems. The existing General Plan provides a policy to ensure that all new units must connect to the City wastewater system and would limit system growth areas within the St. Helena Urban Limit Line, reducing related impacts to less than significant.

HAZARDS AND HAZARDOUS MATERIALS

As with the Proposed Plan, existing federal and State regulations regarding the management of hazardous materials would apply to all future development and land use activities in the Planning Area under both the No Project Alternative and Transportation Network Enhancement Alternative. Compliance with these regulations would ensure that both alternatives would have a less than significant impact related to the routine transport, use, disposal, and potential upset of hazardous materials. Additionally, as with the Proposed Plan, the Transportation Network Enhancement Alternative would also incorporate policies and actions to reduce risks associated with hazardous materials; therefore, this alternative would also have a less than significant and slightly reduced impact related to the routine transport, use, disposal, and potential upset of hazardous materials as compared with the No Project. While the No Project Alternative would retain policies and implementing actions from the 1993 General Plan that protect residents from the health and safety impacts related to the use, storage, and manufacture of hazardous materials, the Proposed Plan and Transportation Network Enhancement Alternative include policies that are more specific and action-oriented.

Similarly, existing regulations and programs would help to reduce potential impacts of development on Cortese List sites under both the No Project Alternative and the Transportation Network Enhancement Alternative. Additionally, the Transportation Network Enhancement Alternative includes Proposed Plan policies and actions requiring soil investigations and hazardous materials management. The No Project Alternative would include similar policies to reduce potential impacts. As with the Proposed Plan, impacts under both alternatives would be less than significant.

Both alternatives would allow for the development of land uses within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. For example, under either alternative, industrial uses would be allowed within a quarter-mile of existing schools. Three schools (St. Helena High School, St. Helena Primary School, and St. Helena Catholic School) are in close proximity to existing industrial land uses. Neither the Transportation Network Enhancement Alternative nor the No Project Alternative would expand the industrial land use designations, and therefore neither would increase school exposure to hazardous materials. As each alternative must follow the State law and existing regulations regarding hazardous materials near schools, future schools constructed within either Planning Area could not be located near hazardous material sites. Both alternatives would have less than significant impacts.

Neither the Transportation Network Enhancement Alternative nor the No Project Alternative would result in an airport safety hazard for people residing or working within the Planning Area. As no public airports, public use airports, or private airstrips are located within 2 miles of the Planning Area, neither alternative would have an impact, similar to the Proposed Plan.

Neither the Transportation Network Enhancement Alternative nor the No Project Alternative would physically interfere with an adopted emergency response or evacuation plan. Both alternatives would include policies promoting emergency preparedness and as well as facilitating emergency access throughout the Planning Area. Therefore, both alternatives would have a less than significant impact regarding emergency response or evacuation plans. The Transportation

Network Enhancement Alternative could improve emergency access in the Planning Area by adding a parallel route through part of the city, therefore having a lower impact than the Proposed Plan, No Project Alternative, or even existing conditions. Given that the No Project Alternative would also not include the full range of policies included in the Proposed Plan and Transportation Network Enhancement Alternative, it could potentially have a greater impact.

As discussed in Chapter 3.8, some areas in the western uplands of the city and Study Area 1 have been classified as having "high" fire threat, including a portion of General Plan Potential Change Area 9. However, both of the alternatives and the Proposed Plan include similar policies requiring all development to adhere to safety standards provided in the St. Helena Municipal Code, the CBC, and California Fire Code. They also promote close coordination with emergency services to ensure the safety of new development and to increase fire safety awareness. Therefore, impacts related to the exposure of people or structures to wildland fire under both alternatives would be less than significant, similar to the Proposed Plan.

HYDROLOGY AND WATER QUALITY

The Transportation Network Enhancement Alternative has the same land use development pattern and projected buildout as the Proposed Plan with the exception of the extension of Oak Avenue within the City's ULL. Therefore, any differences in potential impacts would result from construction of the extension and the extension itself.

The City is subject to the RWQCB Monitoring and Reporting Program, the NPDES permit, and the Industrial General Permit, all of which ensures a pretreatment program for effluent discharged into the Napa River. Policies included in the Proposed Plan and Transportation Network Enhancement Alternative, such as LU1.1, CD1.5, and OS3.1, would require full implementation of stormwater BMPs to reduce pollutants in stormwater runoff to the maximum extent practicable, which would ensure that federal, State, and local water quality standards and waste discharge requirements are met. With compliance with existing federal, State, and local water quality regulations, including the NPDES program, as well as policies included in each alternative, impacts related to water quality and water quality standards would be less than significant. While the No Project Alternative does not include policies that address pollutants in stormwater runoff, the federal, State, and local water quality regulations discussed above would apply to this alternative, reducing the overall impact on water quality and water quality standards to a level that is less than significant.

The California Sustainable Groundwater Management Act (SGMA) of 2014 requires local authorities to achieve sustainable management of groundwater basins. Napa County has prepared a Basin Analysis Report demonstrating that the groundwater basin has been operating within a sustainable yield for the past 10 years, thus complying with the SGMA. Existing General Plan policies 2.6.3, 2.6.63, 9.2.1, 9.2.3, and 9.2.4, and Proposed Plan/Transportation Network Enhancement Alternative policies CD1.5, CD3.1, CD3.B, and LU1.1 would ensure safe yield guidelines for groundwater draws, though the No Project Alternative would not include policies that focus on green building and minimizing surface water runoff in new development. Overall, compliance with existing federal, State, and local programs and policies would ensure that impacts related to substantial decreases in groundwater supply or substantial interference with

groundwater recharge from implementation of either alternative or the Proposed Plan would be less than significant.

Implementation of the Proposed Plan and Transportation Network Enhancement Alternative would primarily involve redevelopment of previously developed sites with residential, commercial, and public uses compatible with existing development in the area. As such, the Proposed Plan or would not substantially alter the existing drainage pattern of the planning area, creating a less than significant impact. The Transportation Network Enhancement Alternative would result in the extension of Oak Avenue and could alter drainage patterns through the construction of a bridge across Sulphur Creek. Construction of this extension and the extension itself could also impact surface water runoff as it would create a new impervious surface in the Planning Area. Implementation of policies OS3.1 and OS3.2 and implementing actions OS1.A, OS1.B OS1.H, OS1.N, and OS3.A could reduce the impact of construction of this extension and the extension itself on drainage and runoff to a less than significant level. Additionally, this area represents a very small portion of the drainage area. The No Project Alternative would alter existing drainage patterns, but the impacts would be less than significant because newly developed areas would represent a very small proportion of the total Napa River drainage area.

Any new development resulting from the Proposed Plan or either alternative would be required to comply with the Bay Area Stormwater Management Agencies Association (BASMAA) Manual's design guidance for stormwater treatment, as required by Napa County's Phase II Small MS4 General Permit. These stormwater treatment guidelines would require new development within the Planning Area to detain storm runoff with bioretention facilities, minimize surface flow velocities, and make use of all applicable LID techniques. New development, during both construction and operations phases, would be required to comply with the City of St. Helena's Stormwater Management Standards, which require the preparation of a SWPPP and implementation of BMPs to mitigate risks of polluted runoff. Compliance with existing State and local programs and policies would ensure that impacts related to an excess amount of runoff water or polluted runoff from implementation of either alternative or the Proposed Plan would be less than significant.

Development within the floodway, including construction of housing, would constitute a significant risk, as FEMA designates these as channels which should flood regularly and provide unimpeded conveyance for floodwaters during a typical large storm event. Under the Transportation Network Enhancement Alternative, development within the floodway-designated portions of Change Areas 4 and 5 and Housing Opportunity Sites 6 or 7 would result in a significant impact. Mitigation Measure HYDRO-1would result in the modification of floodway boundaries such that the proposed development would no longer be within the floodway pursuant to FEMA regulations. However, the extension of Oak Avenue would be within the floodway and could constitute a significant and unavoidable risk. Design of the extension and the bridge crossing Sulphur Creek that would reduce the impact of flooding on the Oak Avenue extension and nearby development would be required to reduce this impact to a level that is less than significant.

As for the No Project Alternative, development on certain areas west of the Napa River would be subject to flooding during a 100-year storm event. The Municipal Code provides rigorous flood zone regulations, requiring that any new construction or substantial improvement of a residential structure within FEMA's 100-year flood hazard area shall have the lowest floor elevated to at least

eighteen inches above the base flood elevation (Section 15.52.150). These requirements provide mitigation for risks to life and property in 100-year flood hazard zones, including housing. Additionally, existing General Plan policies such as 8.6.1, 8.6.6, and 8.6.8 each would ensure that development is built in such a way that reduces impacts from flooding to a less than significant level. However, the No Project Alternative lacks the rigorous Proposed Plan policies and implementing actions related to floodplain management and development standards that would protect against flooding, making any impact related to flooding under this alternative much more severe than the Transportation Network Enhancement Alternative or the Proposed Plan.

The only levee that could impact the Planning Area is located just upstream of the confluence of Sulphur Creek and the Napa River. The levee is newly constructed to reduce flood risk to that area of St. Helena. It is inspected and maintained by the Napa County Flood Control and Water Conservation District, and due to its new construction, the risk of failure and flooding is less than significant for both alternatives, as well as the Proposed Plan.

A seiche, a standing wave in an enclosed or partially enclosed body of water, could occur in one of the nearby reservoirs in Napa County, but the closest of these, Bell Canyon Reservoir and Lake Hennessy, are each over two miles away from the Planning Area, and each has restricted development along its shoreline due to use as municipal water supply. Therefore, the risk of a seiche affecting the Planning Area is less than significant. Most of the Planning Area is not susceptible to landslides. Development under either alternative could not result in inundation by tsunamis, mudflows, or seiches, similar to the Proposed Plan.

LAND USE, POPULATION, AND HOUSING

Neither the No Project Alternative or the Transportation Network Enhancement Alternative would involve the construction of a linear feature, such as an interstate highway or railroad tracks, or removal of a means of access, such as a bridge, that would physically divide an existing community. The Transportation Network Enhancement Alternative would involve construction of multi-modal roadway improvements to provide better local connections. Therefore, the No Project Alternative and the Transportation Network Enhancement Alternative would result in less than significant impacts, as with the Proposed Plan. As under the Proposed Plan, there would be no impact related to conflicts with an applicable habitat conservation plan or natural community conservation plan, as there are no such plans that apply in St. Helena.

Growth under the Transportation Network Enhancement Alternative is projected to result in 700 new residents and 1,000 new jobs in St. Helena by 2040, which represents a 12 percent increase in population and 19 percent increase in employment over 2018 conditions. As with the Proposed Project, this level of growth is generally consistent with ABAG projections and the policies that would encourage infill development under this alternative would be consistent with the objectives of Plan Bay Area 2040. As such, this alternative would result in a less than significant impact related to substantial, unplanned population growth, as with the Proposed Project. As with the Proposed Plan, this alternative includes action LU2.A which calls for an update to the zoning ordinance and map for consistency with the General Plan. Therefore, impacts related to conflicts with adopted plans and policies would also be less than significant under this alternative, as with the Proposed Plan.

The No Project Alternative would result in a 6 percent population increase and a 14 percent increase in jobs of 2018 conditions, which is consistent with ABAG growth projections for St. Helena in 2040; however, this alternative would not include Proposed Plan policies that encourage infill development and compact development. Further, as the land use designations would not be updated under this alternative, inconsistencies with the zoning ordinance would need to be reconciled. Therefore, while the No Project Alternative would result in less than significant impacts related to substantial, unplanned population growth and conflicts with adopted plans and policies, this alternative would result in greater impacts than the Proposed Plan.

Under the Transportation Network Enhancement Alternative, the multi-modal roadway improvements could potentially result in the removal of residential or commercial structures, depending on the alignment of the roadway extension. However, as the 2015-2023 City of St. Helena Housing Element and existing City and County policies related to affordable housing and homelessness would remain in force under both the No Project Alternative and the Transportation Network Enhancement Alternative, impacts related to the displacement of substantial numbers of people and housing units under these alternatives would be less than significant, as with the Proposed Plan.

NOISE

The Transportation Network Enhancement Alternative would not generate noise levels above the existing standards, with the exception of construction-related noise related to the extension of Oak Avenue. While construction of this extension would generate noise levels in excess of existing standards, this would be a temporary impact and Proposed Plan policy PS2.F would require construction operations to use noise suppression devices and techniques and limit noisy construction activities that can be heard at the property line to the least noise-sensitive times in accordance with the Noise Ordinance. Compliance with the City's Noise Ordinance would be required for any future construction in the city. Thus, no conflicts with the General Plan or Noise Ordinance standards would be anticipated. Assuming compliance with construction-related noise level standards found in the City's General Plan and Municipal Code, the No Project Alternative would also have a less than significant impact given that the level of development is much lower compared to the Proposed Project and Transportation Network Enhancement Alternative.

Implementation of policies PS2.2, PS2.3, and PS2.4 and implementing actions PS2.C, PS2.E, PS2.F, and PS2.G under the Proposed Plan and Transportation Network Enhancement Alternative would reduce potential noise-related impacts on sensitive receptors. Similarly, the No Project Alternative would follow existing policies that discourage noise sensitive land uses from locating in areas with high noise levels (Policy 8.3.2) and limit intrusive and intermittent noise for residential receptors (Policy 8.3.9). These existing and proposed policies reduce impacts of exceeding noise standards to a less than significant level for both alternatives and the Proposed Plan.

Traffic activities under the Transportation Network Enhancement Alternative would be similar to that under the Proposed Plan, with the exception of the extension of Oak Avenue. Therefore, traffic activities would be expected to be similar to the proposed Plan, which would increase VMT by 25 percent. While implementation of the Transportation Network Enhancement Alternative would include policies aimed at reducing VMT and result in the paving of the Oak Avenue extension, this alternative could introduce a significant impact regarding traffic-related vibration in an area that

is currently designated as Agricultural and contains the Sulphur Creek. Mitigation Measure NOI-1 would be required to assess the potential vibration impact of construction of this extension and the extension itself in order to reduce this impact to a level that is less than significant. The No Project Alternative would increase VMT only 5 percent above existing conditions and therefore would not result in a substantial increase in traffic-related vibration.

Although existing train operations, such as the Napa Valley Wine Train, generate vibration levels, the alternatives would not change vibration levels generated from trains. Groundborne vibration from construction, however, may be significant for both alternatives, as well as the Proposed Plan. A significant impact would occur if such projects generate groundborne vibration or noise at levels that could result in damage to structures or prolonged exposure to continuous audible or feelable vibrations that could be considered annoying to people in buildings.

The City's Noise Ordinance would help reduce construction vibration at future and existing sensitive land uses by limiting the times at which construction could take place to certain time periods when it would not be a major disturbance to neighbors. However, even with the Noise Ordinance, it may not be feasible in all cases to mitigate construction vibration from individual projects to a less-than-significant level. As discussed, Mitigation Measure NOI-1 would require a vibration study where vibration impacts have the potential to cause structural damage or distinctly perceptible human response, including a site-specific engineering assessment of potential vibration impacts to structures and sensitive receptors from construction activities and specify a mitigation plan to minimize the impacts using all reasonable and feasible means available. Implementation of this Mitigation Measure would be required to reduce construction-generated vibration to a less than significant level for both alternatives and the Proposed Plan.

The No Project Alternative would not substantially increase traffic levels and is not anticipated to increase traffic noise levels, therefore having a less than significant impact. The Transportation Network Enhancement Alternative would be expected to generate a similar level of traffic activity as the Proposed Plan, and therefore a similar increase in VMT (25 percent) and traffic-related noise. Under the Proposed Plan, adherence to policies regarding noise levels and VMT reduction and the existing Napa County General Plan would reduce the potential traffic-related noise level impacts to a level that is less than significant. While this is also expected under the Transportation Network Enhancement Alternative, this alternative would introduce an extension of Oak Avenue into area currently designated as Agricultural. Implementation of this alternative would result in a permanent increase in ambient noise from traffic in the planning area. Neither of the alternatives nor the Proposed Plan would have an effect on railway traffic in the Planning Area. Therefore, there would be no impact on ambient noise from rail.

Potential impacts related to temporary or periodic increases in ambient noise levels would primarily be related to construction activities, which would likely be similar among the alternatives and the Proposed Plan. However, construction of the extension of Oak Avenue under the Transportation Network Enhancement Alternative would create a larger impact on construction-related noise than the Proposed Plan or No Project Alternative. As construction activities would be required to comply with the City's Noise Ordinance and Napa County Noise Regulations, substantial temporary increase in ambient noise levels from construction noise would be considered less than significant.

The Planning Area is not located within two miles of a public airport or public use airport. The nearest public use airport is located four miles northeast of the Planning Area, and the nearest private airstrip is located seven miles northeast of the Planning Area. Therefore, there would be no impact regarding the exposure of people excessive noise levels related to the location of the Planning Area within two miles of a public airport, public use airport, or private airstrip.

PUBLIC SERVICES AND RECREATION

The Proposed Plan would result in less than significant impacts with respect to public services, parks, and recreational facilities. The Police and Fire Departments determined that while the Proposed Project would result in increased calls for police, fire, and emergency medical services, growth in residents and employees under the Proposed Plan would not be substantial enough to require the construction of new or the expansion of existing facilities. Buildout of the Transportation Network Enhancement Alternative would result in the same number of new residents and employees in the city in 2040 as under the Proposed Plan and construction of the multi-modal roadway improvements envisioned under that alternative would be done in compliance with City Engineering Standards and other applicable regulations and would serve to reduce vehicle congestion on SR-29. As such, the Transportation Network Enhancement Alternative would result in a less than significant impact to police and fires service in 2040, as under the Proposed Plan. The No Project Alternative would result in 340 fewer residents and 220 fewer jobs in 2040 than under the Proposed Plan and as such would generate fewer calls for service. Therefore, impacts to police and fire service would be reduced under this alternative and less than significant.

Both the No Project Alternative and the Transportation Network Enhancement Alternative would increase the resident population in 2040; however, the increased population would not require the construction of new or the expansion of existing school, library or community facilities. Impacts would be similar to the Proposed Plan and less than significant. Similarly, the increased population under the No Project Alternative and the Transportation Network Enhancement Alternative would not increase the use of neighborhood parks or regional recreational facilities such that new or expanded facilities would be required.

Proposed Plan policies PR1.B and PR4.C call for the development of a parks master plan and creation of new parks, including the creation of an approximately 21-acre park at the Lower Reservoir to achieve the established ratio of parkland per thousand residents. Proposed Plan policies and actions, including those pertaining to park planning and development in riparian areas, would ensure that the construction of new parks would minimize potential impacts to the extent practicable. These same policies and actions would apply under the Transportation Network Enhancement Alternative and therefore this alternative would have a less than significant impact, as under the Proposed Plan. Under the No Project Alternative, Proposed Plan policies and actions would not apply, however, similar policies including policy 10.3.11 which calls for the development of passive recreational opportunities at the Lower Reservoir site and policy 10.3.10 which calls for a centrally-located park on the east side of town as well as policies related to protection of riparian areas would apply. Therefore impacts would be similar to the Proposed Project and less than significant.

TRANSPORTATION

The Proposed Plan would result in significant impacts at six intersections on Main Street (SR-29) as well as at the intersection of Pope Street and Silverado Trail in 2040. The No Project Alternative would result in fewer new residents and new jobs in St. Helena in 2040 than under the Proposed Plan, and as such would result in reduced impacts at the affected intersections as compared to the Proposed Plan. VMT would increase by 5 percent over existing conditions under the No Project Alternative, compared to a 25 percent increase with the Proposed Plan. Given the marginal projected increase in traffic, implementation of this alternative would have a less than significant impact on intersections in the planning area beyond existing conditions.

The Transportation Network Enhancement Alternative would propose the same land use designations as the Proposed Plan and would result in the same number of new residents and new jobs in 2014 as under the Proposed Plan. However, this alternative would involve the extension of Oak Avenue and the construction of bicycle and pedestrian improvements to create a high-quality bicycle and pedestrian connection to Downtown St. Helena and facilitate local access. This alternative would result in less VMT than the Proposed Plan, which increases total VMT by 25 percent over existing conditions. As shown on Table 4.2-2, the Transportation Network Enhancement Alternative would result in four fewer intersection impacts than under the Proposed Plan. Notably, a less than significant impact is identified for the Main Street/Pope Street-Mitchell Drive intersection under the Transportation Network Enhancement Alternative. It is also projected that peak hour queuing conditions along Main Street south of the Downtown area would be equivalent to existing conditions, and thus impacts to upstream intersections related to queue spillback from the Downtown area would also be less than significant – an improvement over the Proposed Plan. Nevertheless, this alternative would result in significant impacts at three intersections. Given that mitigation measures that could reduce impacts to a less than significant level would require actions from Caltrans that are beyond the City's control to implement, impacts would remain significant and unavoidable as under the Proposed Plan.

Impacts related to conflicts with the Vision 2040 Moving Napa Forward Transportation Plan or the operation of public transit, bicycle, or pedestrian facilities in St. Helena would be less than significant under the No Project Alternative; however, given the wider range of multi-modal and Complete Streets policies and actions in the Proposed Project, the No Project Alternative could have slightly more severe effects than the Proposed Plan. The Transportation Network Enhancement Alternative would also result in less than significant impacts related to Vision 2040 Plan conflicts and multi-modal mobility; however, the bicycle and pedestrian connections that would be created under the Transportation Network Enhancement Alternative would represent a improvement over the Proposed Plan.

As with the Proposed Plan, impacts related to emergency access and roadway hazards under the No Project Alternative and the Transportation Network Enhancement Alternative would be less than significant, given that existing City regulations, including the provisions of the Municipal Code and the City's Engineering Standards, would apply. Similarly, impacts related to air traffic patterns would also be less than significant as neither the No Project Alternative nor the Transportation Network Enhancement Alternative would have the potential to result in a change in air traffic patterns at any nearby public or private airport or airstrip, including the Angwin-Parrett Field airport.

Table 4.2-2: Intersection Levels of Service: Existing and Future Conditions with Oak Avenue Extension

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
1. Spring Mountain Road/Elmhurst Avenue	SSSC	5.1 (10.7)	A (B)	6.3 (13.1)	A (B)	3.0 (10.5)	A (B)	3.7 (11.8)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
2. Spring Mountain Road/Hillview Place	SSSC	1.9 (10.7)	A (B)	2.8 (12.3)	A (B)	2.4 (10.6)	A (B)	3.1 (11.2)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
3. Spring Mountain Road/Madrona Avenue	SSSC	4.7 (11.8)	A (B)	6.3 (14.7)	A (B)	5.0 (11.7)	A (B)	5.8 (14.3)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
4. Madrona Avenue/Hudson Avenue	SSSC	6.0 (9.0)	A (A)	5.6 (9.6)	A (A)	5.7 (8.7)	A (A)	5.8 (9.1)	A (A)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
5. Spring Street/Valley View Street	SSSC	8.8 (12.9)	A (B)	9.6 (15.5)	A (C)	7.5 (10.8)	A (B)	7.3 (11.9)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
6. Grayson Road/Crane Avenue	AWSC	13.6	B	14.9	B	8.8	A	9.1	A	N/A[d]	N/A[d]	N/A[d]	N/A[d]
7. Sulphur Springs Avenue/Crane Avenue	SSSC	4.5 (10.0)	A (A)	4.7 (10.3)	A (B)	3.8 (9.7)	A (A)	3.7 (10.6)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]

Table 4.2-2: Intersection Levels of Service: Existing and Future Conditions with Oak Avenue Extension

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
8. Main Street/Pratt Avenue	SSSC	1.0 **(34.8)**	A **(D)**	4.3 **(103.3)**[e]	A **(F)**[e]	8.8 **(>120)**	A **(F)**	**34.8 (>120)**	**D (F)**	0.9 (24.4)	A (C)	1.8 **(40.1)**[e]	A **(E)**[e]
9. Main Street/Elmhurst Avenue	SSSC	1.2 **(35.6)**	A **(E)**	2.7 **(70.4)**[e]	A **(F)**[e]	3.0 **(77.3)**	A **(F)**	14.8 **(>120)**	B **(F)**	0.9 **(28.6)**	A **(D)**	1.4 **(37.4)**[e]	A **(E)**[e]
10. Main Street/Madrona Avenue-Fulton Lane	Signal	13.2	B	23.0	C	11.3	B	14.8	B	22.6	C	23.9	C
11. Fulton Lane/Railroad Avenue	SSSC	4.5 (10.1)	A (B)	4.5 (10.6)	A (B)	6.6 (10.4)	A (B)	6.5 (11.5)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
12. Main Street/Adams Street	Signal	23.2	C	30.4	C	21.1	C	24.7	C	37.8	D	40.2	D
13. Adams Street/Railroad Avenue	AWSC	10.0	A	11.0	B	11.2	B	12.0	B	N/A[d]	N/A[d]	N/A[d]	N/A[d]
14. Adams Street/Library Lane	SSSC	2.2 (10.6)	A (B)	2.3 (10.9)	A (B)	4.9 (12.4)	A (B)	5.5 (12.6)	A (B)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
15. Main Street/Hunt Avenue	SSSC	0.7 (17.1)	A (C)	0.9 (19.1)	A (C)	1.0 (18.5)	A (C)	1.7 (22.7)	A (C)	1.3 (22.8)	A (C)	1.5 **(25.6)**[e]	A **(D)**[e]

Table 4.2-2: Intersection Levels of Service: Existing and Future Conditions with Oak Avenue Extension

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
16. Hunt Avenue/Railroad Avenue	SSSC	5.5 (14.4)	A (B)	6.2 (16.6)	A (C)	6.8 (14.0)	A (B)	7.6 (16.8)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
17. Mitchell Drive/Oak Avenue	SSSC/AWSC[h]	5.5 (10.3)	A (B)	8.4	A	5.9 (10.2)	A (B)	9.0	A	5.5 (9.7)	A (A)	8.2	A
18. Main Street/Pope Street-Mitchell Drive	Signal	**>120**	**F**	**>120**[f]	**F**	**111.4**	**F**	**110.5**	**F**	**>120**	**F**	**110.7**	**F**
19. Main Street/Grayson Avenue	Signal	36.5	D	52.0	D	20.9	C	43.1	D	26.7	C	38.5	D
20. Main Street/Sulphur Springs Avenue	SSSC	1.6 **(26.6)**	A **(D)**	1.8 **(28.2)**	A **(D)**	1.9 **(27.1)**	A **(D)**	2.1 **(37.2)**[e]	A **(E)**[e]	1.1 (22.0)	A (C)	0.4 (22.8)	A (C)
21. Hunt Avenue/Starr Avenue	AWSC	7.6	A	7.9	A	7.4	A	7.7	A	N/A[d]	N/A[d]	N/A[d]	N/A[d]
22. Pope Street/Starr Avenue	SSSC	2.1 (15.4)	A (C)	3.1 (19.0)	A (C)	2.0 (14.1)	A (B)	3.3 (18.4)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]
23. Pope Street/Paseo Grande Drive-College Avenue	SSSC	6.0 **(27.1)**	A **(D)**	8.0 **(45.6)**[e]	A **(E)**[e]	2.2 (15.5)	A (C)	2.4 (19.3)	A (C)	N/A[d]	N/A[d]	N/A[d]	N/A[d]

Table 4.2-2: Intersection Levels of Service: Existing and Future Conditions with Oak Avenue Extension

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]
24. Silverado Trail/Pratt Avenue	SSSC	*Pratt Avenue closed under existing conditions.*[g]		0.9 (23.0)	A (C)	*Pratt Avenue closed under existing conditions.*[g]		1.8 **(39.2)**[e]	A **(E)**[e]	*Pratt Avenue closed under existing conditions.*[g]		N/A[d]	N/A[d]
25. Silverado Trail/Howell Mountain Road	SSSC	0.5 (14.6)	A (B)	0.6 (16.7)	A (C)	0.9 (17.8)	A (C)	0.9 (22.1)	A (C)	0.6 (15.2)	A (C)	0.8 (19.9)	A (C)
26. Silverado Trail/Pope Street	SSSC	5.7 **(33.1)**	A **(D)**	**35.1 (>120)**	**E (F)**	7.0 **(37.1)**	A **(E)**	**28.7 (>120)**	**D (F)**	5.7 **(29.8)**	A **(D)**	**31.0 (>120)**	**D (F)**
27. Main Street/Mills Lane	SSSC	0.1 (14.5)	A (B)	0.1 (14.5)	A (B)	0.2 (14.4)	A (B)	1.0 **(36.5)**[e]	A **(E)**[e]	0.2 (21.1)	A (C)	0.2 (12.9)	A (B)

Notes:

a. Signal = Signalized intersection; AWSC = All-Way Stop-Controlled intersection; SSSC = Side-Street Stop-Controlled intersection

b. Side-Street Stop-Controlled intersection delay is presented as: Whole-intersection Average Delay (Worst Approach or Worst Movement Delay). Whole-intersection average delay presented for all other intersections.

c. LOS designations per 2010 Highway Capacity Manual. Similar to the delay values, LOS for Side-Street Stop-Controlled intersections is presented as: Whole-intersection Average LOS (Worst Approach or Worst Movement LOS). Whole-intersection average LOS presented for all other intersections.

d. Locations screened out of the weekend peak hour intersection analysis based on intersection total entering volumes. The weekday analysis provides an estimate of weekend conditions.

e. Location impact less-than-significant as intersection does not satisfy peak hour volume signal warrant. As outlined in the Significance Criteria section, unsignalized intersection volumes must satisfy the CA-MUTCD peak hour volume signal warrant in order to identify an intersection as a significant impact.

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Table 4.2-2: Intersection Levels of Service: Existing and Future Conditions with Oak Avenue Extension

Intersection	*Control*	*Weekday AM Peak Hour*				*Weekday PM Peak Hour*				*Weekend Midday Peak Hour*			
		Existing Conditions		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*		*Existing Conditions*		*General Plan Buildout Conditions*	
	Type[a]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]	*Delay (sec)*[b]	*LOS*[c]

f. Location impact less-than-significant as General Plan Buildout Conditions delay (143.3 seconds) is lower than Existing Conditions delay (151.1 seconds).

g. The Pratt Avenue Napa River Bridge is closed due to storm damage from the winter of 2016-17. Funding to correct the damage is in place, and Pratt Avenue is anticipated to be open by 2040.

h. Intersection is side-street stop-controlled under Existing Conditions and all-way stop-controlled under General Plan Buildout Conditions.

Bold represents unacceptable operations. Based on the City's existing LOS standards, unacceptable operations are defined as LOS D, E or F, except at signalized intersection on Main Street where LOS D is acceptable.
Shaded values represent a significant impact.
Source: Fehr & Peers, 2018

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UTILITIES

As shown in Table 4.2-1: Comparison of Key Characteristics, the Transportation Network Enhancement Alternative and the Proposed Plan are projected to have the same population, residential units, and employment rates at buildout. The No Project Alternative has similar but slightly lower projections.

The City of St. Helena is subject to the Regional Water Quality Control Board's (RWQCB's) wastewater treatment requirements and has committed to complying with the RWQCB's regulatory permit. As the St. Helena Wastewater Treatment and Reclamation Plant (WTRP) was demonstrated in Section 3.14: Utilities and Service Systems to have adequate capacity to manage projected increases in wastewater from development under the Proposed Plan, and as development under the Transportation Network Enhancement and No Project alternatives is projected to be similar to or lower than the Proposed Project, it is assumed that there would be adequate capacity to serve the alternatives as well. Thus, as with the Proposed Plan, with the City's commitment to meeting the RWQCB's wastewater treatment requirements and adequate capacity of the WTRP to accommodate development under the alternatives, the risk of St. Helena exceeding the RWQCB's wastewater treatment requirements is less than significant for the alternatives. The Transportation Network Enhancement Alternative would have a similar impact as the Proposed Plan given their similar buildout projections, and the No Project Alternative may have less of an impact, given its lower buildout projections.

As discussed above, the WTRP would have adequate capacity to serve either alternative at buildout; thus, no new wastewater treatment facilities would be required for either alternative. Additionally, as with the Proposed Plan, neither alternative would be expected to require new or expanded water treatment facilities. Due to the City of St. Helena's Water Neutral Policy for Development, there would be no expected increase in water demand under either alternative. Under the policy, developers are required to offset all new water demands with water conservation retrofits or in-lieu payments for the City to undertake such retrofits. Thus, both alternatives would have a less than significant impact related to new water or wastewater treatment facilities, similar to the Proposed Plan. The No Project Alternative may have less of an impact due to its lower projected population and employment at buildout.

As with the Proposed Plan, future development under the alternatives would result in some pervious surfaces being converted to impervious surfaces. Similarly, any new development resulting from the Proposed Plan would be required to comply with the BASMAA Manual's design guidance for stormwater treatment, which would require new development within the Planning Area to make use of all applicable low impact design (LID) techniques to reduce stormwater flows. New development would be required to comply with the City of St. Helena's Stormwater Management Standards, which require the preparation of a stormwater pollution prevention plan and implementation of BMPs to mitigate risks of polluted runoff and to slow stormwater during rain events. In addition, new inputs to the stormwater drainage system in St. Helena must comply with Title 16 of the Municipal Code, which requires retention ponds, drainage swales, and check dams as needed to reduce the off-site peak storm flow. Compliance with the existing federal, State,

and local regulations would reduce impacts related to increases in stormwater velocity and volume to the maximum extent practicable, and compliance with SWRCB regulations would ensure that any new stormwater facilities that were built would not be environmentally harmful. The developed footprint of the No Project Alternative at buildout would be similar to that of the Proposed Plan, but would be slightly less extensive. Therefore, the impact of the No Project Alternative relates to stormwater facilities would be less than significant and potentially less significant than the Proposed Plan. The built area of the Transportation Network Enhancement Alternative would be similar to the Proposed Plan, but would also include an extension of Oak Avenue, which would represent additional pervious surface. Adherence to existing regulations and proposed policies to reduce stormwater volumes would serve to reduce impacts of the Transportation Network Enhancement Alternative to less than significant, but it may have a greater impact than both the No Project Alternative and the Proposed Project.

As previously discussed, the City's Water Neutral Policy for Development ensures that future water demand does not exceed the current demand, for which the City has sufficient entitlements and resources. Both alternatives also include water conservation policies to reduce future water demand. As projected population and employment under the alternatives would be the same or lower than the Proposed Plan, impacts related to water supply would be less than significant for both alternatives. The No Project Alternative may have a slightly lower impact than the Transportation Network Alternative and the Proposed Project due to its lower population and employment projections at buildout.

As discussed in Section 3.14: Utilities and Service Systems, development allowed by the Proposed Plan would increase the amount of solid waste generated by future residential, commercial, industrial and other land uses, but the increase would not exceed the capacity of the Clover Flat Landfill or require construction of new landfill facilities. As population and employment projections for the alternatives are similar to those for the Proposed Plan, impacts for the alternatives related to solid waste capacity would similarly be less than significant. As the No Project Alternative would have slightly fewer housing units and jobs, it may have slightly less of an impact than the Transportation Network Enhancement Alternative or the Proposed Plan.

Federal, State, and local statutes and regulations related to solid waste include AB 939, AB 1327, SB 1016, AB 341, and AB 1836, as well as Title 8 of the City of St. Helena Municipal Code. As with the Proposed Plan, the Transportation Network Enhancement Alternative would contain numerous policies and implementing actions promoting recycling, composting, and other methods of managing and reducing waste, including developing a Waste Management Master Plan, requiring installation of recycling receptacles in public areas, establishing incentives to increase recycling and composting, and establishing a city-wide composting program (PF4.1, PF4.A, and PF4.B), which would serve to reduce potential impacts related to solid waste regulations. There would not be any policies under the Transportation Network Enhancement Alternative that would conflict with requirements for adequate waste receptacles, contracts, or schedules in the local ordinances or goals of the State regulations. Further, any development of future land uses under either alternative or the Proposed Plan would be required to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, the impact for the Transportation Network Enhancement Alternative would be less than significant, similar to the Proposed Plan. While the No Project Alternative includes an existing General Plan policy to support the implementation of the City's Source Reduction and Recycling Element, it would not

have the same range of policies promoting waste reduction and diversion as the Transportation Network Enhancement Alternative and the Proposed Plan. Impacts from the No Project Alternative regarding solid waste regulations would still be less than significant, as future development under the alternative would be required to comply with any relevant regulations, but the impact could potentially be greater than the Transportation Network Enhancement Alternative and the Proposed Plan due to the difference in plan policies.

4.3 Environmentally Superior Alternative

CEQA Guidelines (Section 15126.6) require the identification of an environmentally superior alternative among the alternatives analyzed. Table 4-4.1: Summary of Impacts for Alternatives, summarizes the alternatives' overall environmental impacts for each topic presented in Section 4.3. For the Proposed Plan, six impacts were expected to be significant and unavoidable, three impacts were expected to be less than significant with mitigation, 65 impacts were expected to be less than significant, and three were found to be no impact. For the Transportation Network Enhancement Alternative, seven impacts were expected to be significant and unavoidable, five impacts were expected to be less than significant with mitigation, 62 impacts were expected to be less than significant, and three were found to be no impact. For the No Project Alternative, 11 impacts were expected to be significant and unavoidable, two impacts were expected to be less than significant, 61 impacts were expected to be less than significant, and two were found to be no impact.

While the proposed land use diagrams of the two alternatives and the Proposed Plan are similar, the policies included in the No Project Alternative in many cases do not address the broad range of environmental topics covered by the Transportation Network Enhancement Alternative and Proposed Plan, and are not up to date with current laws and practices concerning environmental impacts. Therefore, of the two alternatives analyzed, the Transportation Network Enhancement Alternative is the environmentally superior alternative. However, while the Transportation Network Enhancement Alternative could relieve impacts related to vehicle congestion and improve access to transportation, making it the environmentally superior of the two alternatives, the extension of Oak Street under this alternative would result in several new potentially significant environmental impacts related to noise, air pollutant and GHG emissions, and hydrology not present with the Proposed Plan.

Overall, the Proposed Project was found to have fewer potentially significant and unavoidable impacts than either the Transportation Network Enhancement Alternative and the No Project Alternative.

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Plan	*Transportation Network Enhancement Alternative*	*No Project Alternative*
Aesthetics			
Scenic Vistas	LTS	LTS	LTS
Visual Character	LTS	LTS	LTS

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Plan	*Transportation Network Enhancement Alternative*	*No Project Alternative*
Light and Glare	LTS	LTS	LTS
Agriculture			
Farmland Conversion	SU	SU	SU
Agricultural Zoning/Williamson Act	LTS	LTS	LTS
Indirect Impacts	LTS	LTS	LTS
Air Quality			
Air Quality Plan	LTS	LTS	LTS
Air Quality Standard	SU	SU	LTS
Criteria Pollutants	SU	SU	LTS
Sensitive Receptors	LTSM	LTSM	LTSM
Odors	LTS	LTS	LTS
Biological Resources			
Special-Status Species	LTS	LTS	SU
Sensitive Habitat	LTS	LTS	SU
Wetlands	LTS	LTS	SU
Wildlife Corridors	LTS	LTS	LTS
Policies and Ordinances	LTS	LTS	LTS
HCPs	NI	NI	LTS
Historic and Cultural Resources			
Historical Resources	LTS	LTS	LTS
Archaeological Resources	LTS	LTS	LTS
Paleontological Resources	LTS	LTS	SU
Human Remains	LTS	LTS	LTS
Tribal Cultural Resources	LTS	LTS	SU
Energy, Greenhouse Gases, and Climate Change			
Impact on Environment	SU	SU	SU
Plan, Policy, or Regulation	SU	SU	SU
Wasteful Energy Consumption	LTS	LTS	LTS
Energy Efficiency Standards	LTS	LTS	LTS
Geology, Soils, and Seismicity			
Seismic Hazards	LTS	LTS	LTS
Soil Erosion	LTS	LTS	LTS
Expansive or Unstable Soils	LTS	LTS	LTS

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Plan	*Transportation Network Enhancement Alternative*	*No Project Alternative*
Septic Systems	LTS	LTS	LTS
Hazards and Hazardous Materials			
Transport, Use, or Disposal	LTS	LTS	LTS
Accidental Upset	LTS	LTS	LTS
Quarter-Mile of Schools	LTS	LTS	LTS
Cortese List	LTS	LTS	LTS
Airport Hazards	NI	NI	NI
Emergency Response	LTS	LTS	LTS
Wildland Fires	LTS	LTS	LTS
Historic and Cultural Resources			
Historical Resources	LTS	LTS	LTS
Archaeological Resources	LTS	LTS	LTS
Paleontological Resources	LTS	LTS	SU
Human Remains	LTS	LTS	LTS
Tribal Cultural Resources	LTS	LTS	SU
Hydrology and Water Quality			
Water Quality Standards	LTS	LTS	LTS
Groundwater	LTS	LTS	LTS
Drainage	LTS	LTS	LTS
Runoff	LTS	LTS	LTS
Water Quality Degradation	LTS	LTS	LTS
Housing in Flood Zones	LTSM	LTSM	LTS
Structures in Flood Zone	LTS	LTSM	LTS
Flood Hazards	LTS	LTSM	LTS
Seiche, Tsunami, and Mudflows	LTS	LTS	LTS
Land Use, Population, and Housing			
Division of a Community	LTS	LTS	LTS
Conflict with Land Use Plan	LTS	LTS	LTS
HCPs	LTS	LTS	LTS
Growth Inducement	LTS	LTS	LTS
Displacement	LTS	LTS	LTS
Noise			
Noise Standards	LTS	LTS	LTS

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Plan	*Transportation Network Enhancement Alternative*	*No Project Alternative*
Vibration	LTSM	LTSM	LTSM
Permanent Ambient Noise Increase	LTS	SU	LTS
Temporary Ambient Noise Increase	LTS	LTS	LTS
Airport Noise	NI	NI	NI
Public Services			
Fire, Police, Schools, Parks, and Public Facilities	LTS	LTS	LTS
Degradation of Parks	LTS	LTS	LTS
Construction or Expansion of Parks	LTS	LTS	LTS
Transportation			
Levels of Service	SU	SU	SU
Congestion Management Plan	LTS	LTS	LTS
Air Traffic	LTS	LTS	LTS
Traffic Hazards	LTS	LTS	LTS
Emergency Access	LTS	LTS	LTS
Transit, Bike, and Pedestrian Facilities	LTS	LTS	LTS
Utilities			
Wastewater Requirements	LTS	LTS	LTS
Water or Wastewater Facilities	LTS	LTS	LTS
Stormwater Capacity	LTS	LTS	LTS
Water Supply	LTS	LTS	LTS
Wastewater Capacity	LTS	LTS	LTS
Landfill Capacity	LTS	LTS	LTS
Solid Waste Regulations	LTS	LTS	LTS

Notes:
LTS = Less than Significant
LTSM = Less than Significant with Mitigation
NI = No Impact
SU = Significant and Unavoidable

5 CEQA Required Conclusions

This section presents a summary of the impacts of the Proposed Plan in several subject areas specifically required by CEQA, including growth-inducing impacts, cumulative impacts, significant and unavoidable impacts, significant irreversible environmental changes, and impacts found not to be significant. These findings are based, in part, on the analysis provided in Chapter 3: Environmental Settings and Impacts.

5.1 Growth-Inducing Impacts

CEQA Guidelines require that an EIR "discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly" (CEQA Guidelines Section 15126.2(d)). This analysis must also consider the removal of obstacles to population growth, such as improvements in the regional transportation system.

Growth-inducing impacts, such as those associated with job increases that might affect housing and retail demand in other jurisdictions over an extended time period, are difficult to assess with precision, since future economic and population trends may be influenced by unforeseeable events such as business development cycles and natural disasters. Moreover, long-term changes in economic and population growth are often regional in scope; they are not influenced solely by changes or policies related to a single city or development project. Business trends are influenced by economic conditions throughout the state and country, as well as around the world.

Another consideration is that the creation of growth-inducing potential does not automatically lead to growth. Growth occurs through capital investment in new economic opportunities by the private or public sector. These investment patterns reflect, in turn, the desires of investors to mobilize and allocate their resources to development in particular localities and regions. These factors, combined with the regulatory authority of local governments, mediate the growth-inducing potential or pressure created by a proposed plan. Despite these limitations on the analysis, it is still possible to qualitatively assess the general potential growth-inducing impacts of the Proposed Plan.

The Proposed Plan allows for new residential and non-residential development that could result in an increase in population, housing, and jobs, compared to existing conditions, which is also described in Chapter 3.10: Land Use, Population, and Housing.

POPULATION

The Planning Area will accommodate a population of approximately 7,300 people at buildout,[1] as seen in Table 5.1-1. This represents a total increase of about 12 percent over the 2018 estimated existing population, an average of about 0.6 percent annually. The projected growth rate is slightly higher than St. Helena's historic growth rate of 0.16 percent annually from 2000 to 2018, but is consistent with the projections by the Association of Bay Area Governments (ABAG), which predicts a population growth rate of about 0.67 percent per year for Napa County.

This projected population growth is in accordance with the Residential Growth Management System (GMS), which limits the number of building permits available for residential growth each year. That limit, as of June 2018, is nine residential units per year, with exceptions given for affordable housing, second units, and in other circumstances as detailed in the City's Growth Management Ordinance. The City, as part of its periodic review of the GMS, considers the current adopted Regional Housing Needs Allocation (RHNA) number as determined by the Association of Bay Area Governments (ABAG) for a given cycle when establishing limits. The Proposed Plan would not alter the GMS. As discussed in Chapter 3.10: Land Use, Population, and Housing, as affordable units are exempted from this cap and in view of new State housing legislation aimed at stimulating affordable housing production and policies in the Proposed Plan, it is assumed that 15 new housing units will be constructed each year through 2040.

As also discussed in Section 3.10: Land Use, Population, and Housing, the Proposed Plan would also ensure that St. Helena's growth is controlled and in accordance with other City policies. Policies and Implementing Actions included in the Proposed Plan would limit the rate of residential development (Policy LU1.7), provide for development of affordable housing (Implementing Actions LU1.A and LU1.C, Policies HE1.1 and HE1.2), encourage infill development (LU1.1, LU1.4, LU1.6), and seek to achieve a balance of jobs and housing (Implementing Action LU3.C, Policy ES1.4, Policy CC1.2, Policy HE1.4, and Implementing Actions HE1.A, HE1.B, HE1.C, HE1.E, and HE2.Q), thus helping to reduce the environmental impacts of population growth and the development needed to accommodate it to a less than significant level.

[1] Buildout is assumed to take place in 2040, but may actually occur sooner or later, given the unpredictability of the economy.

Table 5.1-1: Projected Residential Population at Buildout (2040)

	City of St. Helena		*Planning Area*[3]	
	Housing Units[2]	*Population*[2]	*Housing Units*[2]	*Population*[1,2]
Existing (2018)	2,700	5,900	2,900	6,400
Additional Proposed	300	700	400	900
Total at Buildout	3,100	6,600	3,300	7,300

Notes:

Estimated based on St. Helena accounting for 4.3 percent of the County population.

1. Numbers have been rounded to the nearest hundred.
2. Includes the City of St. Helena, the Sphere of Influence, and three study areas.

Source: Dyett & Bhatia, 2018

PUBLIC FACILITIES AND SERVICES

Most public facilities within St. Helena have sufficient existing capacity – the Proposed Plan will not trigger the creation of any substantial new public facilities. The City's water supply is a mix of Bell Canyon Reservoir surface water, local pumped groundwater, and purchases from the City of Napa. There is some anticipated growth capacity in the purchases from Napa, but policies in the Proposed Plan require approval of new development to be contingent on the ability of the City to provide water. As water supplies will be accrued gradually as needed, this will not induce new growth. The City's wastewater treatment plant has also spare capacity, and can accommodate the full projected growth at Buildout. St. Helena collects development impact fees on both water and wastewater services to ensure that new development doesn't overly tax existing facilities. Additionally, St. Helena's solid waste landfill has significant remaining capacity. The Proposed Plan would not require a significant increase in public facilities such as to induce other growth.

Public services for the Planning Area, including police, fire protection, schools, libraries, and parks and recreation, are currently provided by the St. Helena Police Department, the City of St. Helena Fire Department, the St. Helena Unified School District, St. Helena Public Library and the City of St. Helena Recreation Department, respectively. Development under the Proposed Plan would be in compliance with all applicable codes for fire safety and emergency access. The Proposed Plan's increase in population is modest over time, and not expected to significantly increase demand for new fire or police services beyond what would be provided by required development fees toward the provision of these community services. As of 2018, the St. Helena Unified School District had capacity for additional students in its schools, and anticipated having adequate capacity in the future. The District also assesses development impact fees for residential and commercial projects to ensure funding for any additional future growth necessary. There is not currently enough park space to meet the standard of 5.0 acres per 1,000 residents, but the Proposed Plan includes policies to meet that standard through development impact fees or required park land dedications. Therefore, the Proposed Plan would not tax the existing services facilities, create an unfair burden on existing users, or require the construction of new public facilities that would induce significant growth.

INCREASE IN REGIONAL HOUSING DEMAND

As the employment base in the San Francisco Bay Area continues to increase, more people may be drawn to live in St. Helena even as they work in other nearby cities. As a result, housing demand

may continue to increase within the Planning Area. The Bay Area Government Regional Housing Needs Allocation Plan attempts to balance regional housing demand across Bay Area cities, and all municipalities are required to provide a "fair share" of housing. The 2015-2023 Regional Housing Need Plan requires St. Helena to provide 31 new housing units by the end of 2023, and allocates a total of 1,482 new housing units to Napa County overall (ABAG, 2013).

The development of non-residential uses could support job growth in the Planning Area. The buildout of the Proposed Plan estimates an increase of 1,100 jobs in the Planning Area between 2018 and 2040, representing a 0.9 percent average annual growth rate in jobs. This growth rate is somewhat lower than the 1.4 percent average annual jobs growth rate in Napa County overall from 2000 to 2015 (California Employment Development Department, 2016).

As the employment base in the Planning Area increases due to the Proposed Plan land uses and policies that foster employment, more people may be drawn to the Planning Area to work, live, or both. As a result, housing demand may increase in both the Planning Area and other adjacent areas that are within commuting distance. The Proposed Plan is projected to result in the development of approximately 200 single-family housing units and about 200 multi-family housing units, for an increase of about 400 new dwelling units in the Planning Area by the year 2040, resulting in a total of 3,300 units in the Planning Area when added to the existing housing stock. To ensure that housing is available to meet the needs of future residents under the Proposed Plan, the City would continue to use its Growth Management Ordinance to assess its supply of housing and provide policies and programs to ensure that the community continues to meet its fair share of regional housing needs.

JOBS/HOUSING RATIO

A desirable city-wide jobs-to-housing ratio is often defined as a ratio greater than 1.0 but less than 2.0. Because most households have more than one wage earner, ratios below 1.0 suggest that residents are required to commute to jobs outside of their area of residence, and ratios greater than 2.0 suggest that employers are not able to house their workers within the jurisdictions, requiring workers to commute into the area. Theoretically, a balanced jobs-to-housing ratio would reduce the need for people to commute in or out of town for work. In reality, the match of education, skills, and interests is not always accommodated within the boundaries of one community, and regional interdependencies almost always result in at least some inter-city commuting. The City cannot dictate the residential location of future employees in the Planning Area.

Based on the estimated buildout of the Proposed Plan, the jobs-to-housing balance in the Planning Area in 2040 will shift slightly from 2.03 in 2018 to 2.12 in 2040, as shown in Table 5.1-2: Jobs-to-Housing Unit Ratio. Within the City of St. Helena, the jobs-to-housing ratio is projected to stay almost exactly the same, moving from 2.00 in 2018 to 2.06 in 2040. Further, the Proposed Plan includes policies to maintain a desirable jobs-to-housing ratio, including by taking inventory of all non-residential uses and aligning this inventory with efforts to balance jobs and housing; supporting sustainable tourism as a source of jobs while avoiding mass-market tourism; encouraging the construction of workforce housing; and encouraging jobs/housing match (LU3.B, ES2.1, ES1.4, ES1.F, and CR1.8). Therefore, the estimated jobs-to-housing ratio in St. Helena in 2040 would not be expected to induce new residential growth.

Table 5.1-2: Jobs-to-Housing Unit Ratio (2018 & 2040)

	City of St. Helena		*Planning Area*[2]	
	2018	*2040*	*2018*	*2040*
Jobs[1,2]	5,400	6,400	5,900	7,000
Housing Units[1]	2,700	3,100	2,900	3,300
Jobs to Housing Unit Ratio	2.00	2.06	2.03	2.12

Notes:

1. Numbers rounded to the nearest hundred
2. Includes the City of St. Helena, the Sphere of Influence, and three study areas.

Source: Dyett & Bhatia, 2018

5.2 Cumulative Impacts

CEQA requires that an EIR examine cumulative impacts. As discussed in CEQA Guidelines Section 15130(a)(1), a cumulative impact "consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." Furthermore, the analysis of cumulative impacts need not provide the level of detail required of the analysis of impacts from the project itself, but shall "reflect the severity of the impacts and their likelihood of occurrence." (CEQA Guidelines Section 15130(b)).

In order to assess cumulative impacts, an EIR must analyze either a list of past, present, and probable future projects or a summary of projections contained in an adopted general plan or related planning document. Because it is a long-range, programmatic plan for an entire city and surrounding area, the Proposed Plan represents the cumulative development scenario for the reasonably foreseeable future in the Planning Area, and this analysis uses the summary projections of the Proposed Plan. This future scenario incorporates the likely effects of surrounding regional growth. The cumulative analysis also assumes potential development of the Urban Reserve Areas identified in the Proposed Plan (see Figure 2.3-2).

CUMULATIVE ANALYSIS PROVIDED IN CHAPTER 3

Several analyses presented in Chapter 3: Environmental Settings and Impacts represent cumulative analyses of issues through the Proposed Plan horizon year of 2040 because they combine the anticipated effects of the Proposed Plan with anticipated effects of regional growth and development. By their nature, the air quality transportation, noise, energy, greenhouse gas emissions, and climate change analyses presented in Chapter 3 represent a cumulative analysis, because the effects specific to the Proposed Plan cannot reasonably be differentiated from the broader effects of regional growth and development. Thus, analyses for these topics reflect not just growth in the Planning Area, but growth elsewhere in the region as well. The cumulative conclusions are summarized there, and where applicable, significant unavoidable impacts are listed in Section 5.3 Significant and Unavoidable Impacts. Other cumulative impacts are identified below.

OTHER CUMULATIVE IMPACTS

For some issue areas evaluated as direct impacts in Chapter 3, concurrent implementation of the Proposed Plan, along with regional growth and development, may result in cumulative impacts:

- **Cumulative Effects on Land Use and Population:** Projects that could have the effect of physically dividing an established community – such as a major new road, highway, or similar infrastructure – tend to have a singular rather than cumulative impact. Similarly, impacts from plans and projects in the region that could conflict with existing plans, including habitat conservation plans, are not cumulative in nature. However, potential impacts related to population and housing can be cumulative in nature. Population growth, by itself, is not an environmental impact; however, the direct and indirect effects, such as housing and infrastructure needs that are related to population growth, can lead to physical environmental effects. The Association of Bay Area Governments (ABAG) projects that Napa County will experience total population growth of 23,700 people between 2015 and 2040. The 900 new residents anticipated in the Planning Area as a result of buildout of the Proposed Plan represent only about 4 percent of Napa County's projected population growth. Therefore, the Proposed Plan's contribution to this potentially significant cumulative impact is less than cumulatively considerable.
- **Cumulative Effects on Aesthetics:** Reasonably foreseeable growth within the Napa Valley could have cumulative effects on the region's aesthetic character. The Planning Area, and much of Napa Valley, are aesthetically characterized by historic downtowns, tree-lined streets, agricultural uses, and prominent natural features, such as the Napa River and surrounding hillsides. The City of St. Helena's design review process, in combination with the Proposed Plan's policies, would maintain the high-quality visual character of existing and future buildings, would limit impacts to agricultural lands, and would primarily contain growth within the Urban Limit Line, ensuring that aesthetic character is maintained. Therefore, the Proposed Plan's contribution to this potential cumulative impact is less than cumulatively considerable.
- **Cumulative Increases in Hazardous Materials**: Projected population and employment growth in the Planning Area would increase the number of people potentially exposed to impacts from hazardous material transportation, the increased use of hazardous household, commercial, and industrial materials, as well as a cumulative increase in exposure to risk associated with the accidental release of hazardous materials into the environment. However, compliance with local, State, and federal regulations pertaining to the production, use, and transportation of hazardous materials would apply to development throughout the region; therefore, the Proposed Plan's contribution to this potential cumulative impact is less than cumulatively considerable.
- **Cumulative Effects on Agricultural and Forestry Resources**: The Proposed Plan would likely lead to development of up to 118 acres of Important Farmland, as described in Chapter 3.2: Agricultural Resources. This conversion from agricultural land use to urban land use constitutes a significant and unavoidable impact. Further, if the City of St. Helena becomes fully developed within the Urban Limit Line, Urban Reserve Areas, some of which are currently designated Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance, could be considered for development. Napa County as a whole has strong agricultural preservation land use policies, and its 2013 Napa County

General Plan promotes urban-centered growth and protections for agricultural lands (Napa County, 2013). The Proposed Plan's emphasis on infill development fits with Napa County's policies, concentrating growth in the urban core and disincentivizing growth in surrounding farmlands. However, development pressures will likely result in the conversion of more farmland, and implementation of the Proposed Plan would result in contributing farmland conversion and indirect affects to agricultural uses. Between 1990 and 2010, over 4,200 acres of greenfield development occurred in Napa County, at an average rate of about 200 acres per year, suggesting continued conversion of farmlands into the future. Therefore, the Proposed Plan's contribution to this significant impact is cumulatively considerable.

- **Cumulative Effects on Public Services and Recreation:** Public services are generally provided by local governments and/or special districts for areas within their jurisdiction and are not provided on a regional basis. Fire and police protection services are provided by local governments or fire protection districts for areas within their jurisdiction, although mutual aid agreements between agencies do help spread resources. Public schools are provided by school districts to areas within their jurisdictions. While districts may have cross jurisdictional boundaries, school services are still provided at the local, rather than regional, level. Several agencies provide park and recreation services in the region, including counties, cities, and special districts. Each of these areas has their own parkland ratios and standards and is responsible for providing parkland to meet the local demand. An increase in regional population may increase demand for parks and recreation facilities and services; however, these local jurisdictions have authority over land use, set and implement level of service standards, and determine the siting and timing of public service projects. The impacts on public services and facilities are not cumulative in nature, and are therefore not cumulatively considerable.
- **Cumulative Effects on Cultural, Historic, and Tribal Resources:** There are known historical resources within the Planning Area, as well as the potential for unknown archaeological resources that could be affected by development under the Proposed Plan, and, when considered with other regional growth and development, could have a cumulative impact on these resources. However, all development projects in the region would be required to conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties. Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5(f), which would apply to projects throughout the region, recognize that historical or unique archaeological resources may be accidentally discovered during project construction and guidelines recommend that if a potential resource has been discovered, that an immediate evaluation by a qualified archaeologist be included in mitigation measures. Further, the California Health and Safety Code Section 7050.5 includes specific provisions for the protection of human remains in the event of discovery, and Section 7052 makes the willful mutilation, disinterment, or removal of human remains a felony. The Health and Safety Code is applicable to any project throughout the region where ground disturbance would occur. Given these protections in place for cultural, historic, and tribal resources, the Proposed Plan's impact on this potentially significant cumulative impact I not cumulatively considerable.

- **Cumulative Effects on Hydrology and Water Quality:** New development in the region has the potential to generate impacts related to the violation of water quality standards, erosion and sedimentation, construction-related water quality impacts, and flood hazards. The Proposed Plan, in combination with regional growth and development, could impact local water quality through increased non-point source pollution resulting from greater use intensity, increased use of routine household cleaners and landscape chemicals, and more vehicle miles traveled. State and regional regulations described in Section 3.8: Hydrology and Water Quality, would reduce the rate of runoff and filter out pollutants. Construction activities are required to comply with the State Water Resources Control Board statewide NPDES stormwater permit program, the Porter-Cologne Act's requirements for site-specific waste discharge, as well as local agency public works construction standards. In addition, policies in the Proposed Plan and existing City regulations would ensure protection of water quality, improve stormwater management, and reduce stormwater pollution. Increased impervious surface area as a result of the Proposed Plan would be mitigated by multiple policies requiring infiltration space. Therefore, the Proposed Plan's contribution to this potentially significant cumulative impact is less than cumulatively considerable.

  The Proposed Plan, in combination with other planned and reasonably foreseeable regional population growth, could strain regional surface water systems, especially if water becomes more scarce in California as a result of climate change. As discussed in Chapter 3.14: Utilities and Service Systems, St. Helena plans to obtain additional water from the City of Napa. In conjunction with future growth in Napa County, which may also rely on the City of Napa's water resources, strains on the water supply may become unsustainable. Surface waters may not be abundant enough to meet demand in times of drought, and local aquifers are currently being pumped near safe yield capacity. However, the City of St. Helena's 2011 Water Neutral Policy for Development requires all new development to be water-neutral, through a combination of on-site water conservation measures, off-site retrofitting and well water as allowed. Therefore, the Proposed Plan's contribution to this potentially significant cumulative impact is less than cumulatively considerable.

- **Cumulative Effects on Utilities**: Cumulatively effects on potable water treatment and distribution, wastewater collection and treatment, and stormwater systems are each discussed below:

  - **Potable Water Treatment and Distribution:** The cumulative effects on water supply and groundwater are discussed above in the Hydrology and Water Quality section; this evaluation focuses on impacts on the water treatment and distribution systems.

    The City of St. Helena's Bell Canyon Reservoir- and groundwater-sourced drinking water is treated and delivered by the City and is isolated from other systems, so impacts are not cumulative in nature. But because the City of St. Helena obtains a portion of its water from the City of Napa, which treats it before delivery, reasonably foreseeable regional growth could strain existing treatment and delivery systems. However, due to the City of St. Helena's 2011 Water Neutral Policy for Development that requires all new development to be water-neutral, there would be no foreseeable growth in the Planning Area's required water treatment or delivery from Napa. Therefore, the Proposed Plan's contribution to this potentially significant cumulative impact is less than cumulatively considerable.

- **Wastewater Treatment and Distribution:** The City of St. Helena handles its own wastewater treatment and distribution through its Wastewaster Treatment and Reclamation Plant, which is isolated from other regional wastewater treatment plants. Thus, the impacts on the sewer system facilities are not cumulative in nature and are less than cumulatively considerable.
- **Stormwater Systems:** The cumulative effects on stormwater runoff volume, infiltration, and pollution are described above in the Hydrology and Water Quality section; this evaluation focuses on impacts to the stormwater system.

  Because the City of St. Helena provides stormwater and flood management within its borders, and owns and operates the stormwater drainage system, these systems are largely isolated from the rest of the region. Thus, the impacts on stormwater facilities are not cumulative in nature, and are less than cumulatively considerable.
- **Solid Waste:** The cumulative Clover Flat Landfill is the solid waste disposal site for Upper Valley Disposal & Recycling, which provides services to most of northern Napa Valley. Growth throughout this region could contribute to a significant cumulative impact on the landfill's capacity. Although the estimated solid waste generation from the Proposed Plan only accounts for a small amount of the total capacity of the Clover Flat Landfill, the solid waste from the Planning Area contributes to the cumulative impact on the landfill. Therefore, the Proposed Plan's contribution to this potentially significant cumulative impact is cumulatively considerable.

- **Cumulative Impacts on Geology, Soils, and Seismic Risk:** Potential cumulative impacts related to geology, soils, and seismicity do not extend far beyond a General Plan's boundaries, since geological impacts are confined to discrete spatial locations and do not generally combine to create an extensive cumulative impact condition. The exception to this would occur where a large geologic feature (e.g., fault zone, massive landslide) might affect an extensive area, or where the development effects from a project could affect the geology of an off-site location. These circumstances would not occur as a result of implementation of the Proposed Plan. The cumulative increases in population and development that would result from implementation of the full buildout would increase the number of residents and employees exposed to the region's known seismic hazards; however, conformance with the California Building Code would preserve building integrity during a seismic event, and other regulatory measures would reduce geohazards impacts to a less-than-significant level. As a result, cumulative impacts would be minimized and would be less than significant.
- **Cumulative Impacts on Biological Resources:** The overall cumulative effect of development is dependent on the degree to which significant vegetation and wildlife resources are protected or site- specific impacts are mitigated as part of individual developments. This includes preservation of areas of sensitive natural communities such as valley oak woodland, riparian woodland, and native grasslands, protection of essential habitat for special-status plant and animal species, and avoidance of wetlands. Further environmental review of specific development proposals in St. Helena and implementation of resulting mitigation measures and Plan policies will generally serve to ensure that important biological and wetland resources are identified, protected, and

properly managed, and should serve to prevent any significant adverse development-related impacts.

Cumulative impacts on nesting raptors and other special status species caused by the Proposed Plan in conjunction with other regional projects could be significant but would be mitigated by Proposed Plan policies. Policies to protect special status species include provisions to plan for and protect habitats; promote sustainable agricultural practices to support wildlife habitat; and limit public access to sensitive habitat areas (OS1.1, OS1.2, OS1.3, OS1.4, OS1.7, OS1.A, OS1.B, OS1.C, OS1.D, OS1.E, OS1.F, OS1.G, OS1.H, OS1.I, OS1.J, OS1.K, OS1.L, OS1.M, OS1.OOS1.Q, and OS2.5). The same would apply to cumulative impacts related to loss of wetlands and other waters.

Cumulative development contributes to an incremental reduction in the amount and connectivity of existing natural communities and wildlife habitat. However, most of the anticipated development associated with implementation of the Proposed Plan would occur in locations that are already urbanized or have been extensively altered by past agricultural uses, and therefore have only limited wildlife habitat values. Potential impacts on wetlands and other sensitive biological resources would be addressed through avoidance and adequate mitigation, and any future tree loss would be at least partially addressed through replacement plantings. Conformance with policies and implementation actions in the 2040 General Plan Update would serve to address any significant impacts on biological resources, and the project's contribution to potential cumulative impacts would be considered less than significant.

These types of impacts are not limited to the Planning Area but are characteristic of any area that is experiencing population and employment growth.

5.3 Significant and Unavoidable Impacts

Significant unavoidable impacts are those that cannot be mitigated to a level that is less than significant. According to CEQA Guidelines 15126.2(b), an EIR must discuss any significant environmental impacts that cannot be avoided under full implementation of the proposed program. Chapter 3 identifies the following significant unavoidable impacts when comparing implementation of the Proposed Plan to existing conditions:

AGRICULTURAL RESOURCES

Implementation of the Proposed Plan would allow for the conversion of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance to non-agricultural uses. Under the Proposed Plan, urban development could occur on 118 acres of these farmlands designated by the Farmland Mapping and Monitoring Program (FMMP). Urban development could further result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Conversion of agricultural land to urban use is not directly mitigable, as agricultural land is a finite and irreplaceable resource. Beyond limiting the amount of total growth permitted, there are no feasible mitigation measures for agricultural land conversion that would also fulfill the objectives of and implement the Proposed Plan. The impact would remain significant and unavoidable.

AIR QUALITY

Development under the Proposed Plan could violate air quality standards or contribute substantially to an existing or projected air quality violation. Any development under the Proposed Plan that would exceed Bay Area Air Quality Management District (BAAQMD) regional significance thresholds would contribute to the nonattainment designation of the Air Basin, which constitutes an air quality violation. The Air Basin is currently designated a nonattainment area for California and national O3, California PM2.5, and California PM10 AAQS.

Construction activities associated with the Proposed Plan would cause short-term emissions of criteria air pollutants, including the temporary generation of ozone precursors (ROG, NOX), CO, and particulate matter emissions that could result in short-term impacts on ambient air quality in the Planning Area. While policies in the Proposed Plan would enforce air quality standards during construction, with respect to ROG, NOx and PM exhaust emissions, there could be foreseeable conditions under the Proposed Plan where the amount of construction activity for an individual development project, or a combination of these projects, could result in the generation of these pollutant emissions that exceed their respective BAAQMD significance thresholds (54 pounds/day for ROG and NOx, 82 pounds per day for exhaust PM10, and 54 pounds/day for exhaust PM2.5). Emissions of these pollutants may not be reduced to levels below BAAQMD's thresholds when multiple construction projects are concurrently ongoing in St. Helena. Therefore, the Proposed Plan would cumulatively contribute to the nonattainment designations of the Air Basin during construction, and impacts would be significant and unavoidable.

In addition to the short-term construction emissions, buildout of the Proposed Plan would generate long-term air emissions, and has the potential to result in air quality impacts from mobile, area, and energy sources. Future development under the Proposed Plan would be required to comply with applicable air quality plans, State Implementation Plan (SIP), California Air Resources Board (CARB) motor vehicle standards, BAAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the Proposed Plan policies; however, there is no guarantee that emissions would be mitigated below BAAQMD thresholds. Current nonattainment status and projected ROG and PM10 emissions at buildout in combination with past, present, and reasonably foreseeable projects elsewhere within the Air Basin demonstrate that the Proposed Plan, even with implementation of applicable regulations and Proposed Plan's principles and actions that would reduce impacts associated with long-term operational criteria pollutant emissions, would result in a significant and unavoidable cumulative impact with respect to air quality and attainment of such standards.

Therefore, development under the Proposed Plan could result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard, and could violate air quality standards or contribute substantially to an existing or projected air quality violation. Even with the mitigation measures in the Proposed Plan, the impacts would be significant and unavoidable.

ENERGY, GREENHOUSE GASES, AND CLIMATE CHANGE

Through implementation of the Proposed Plan policies aimed at reducing greenhouse gas (GHG) emissions, the Proposed Plan would serve to implement numerous strategies and mitigation measures aimed at reducing these emissions. However, even accounting for State and federal

standards and for policies within the Proposed Plan that can be quantified, the resulting 2040 per capita emissions are still greater than the BAAQMD efficiency target and the CARB Scoping Plan target. This means that, absent additional measures at the State level, development under the Proposed Plan would conflict with CARB's 2017 Scoping Plan, AB 32, EO S-03-05, or BAAQMD's CEQA Guidelines, as the City does not have direct control over certain aspects of transportation emissions, such vehicle fuel efficiency standards or regional traffic. Further action is necessary at the State and federal levels to achieve the deep cuts to emissions sources outside the City's jurisdictional control needed to meet the GHG emissions reductions targets laid out by the State. Given that, at this time, there are no post-2030 State or federal measures that would assist the City in achieving the efficiency target in 2040, the potential exists for the Proposed Plan to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact remains significant and unavoidable.

TRANSPORTATION AND TRAFFIC

Implementation of the Proposed Plan would contribute to population and job growth, resulting in projected higher amounts of traffic generation and congestion in the City of St. Helena. More specifically, it would cause a significant impact by causing several local intersections to perform below level of service (LOS) standards established by the City of St. Helena or Napa County, as applicable, causing a conflict with these established measures of effectiveness of the circulation system.

27 intersections were studied as part of the analysis under the General Plan Buildout. Analysis performed assuming no Oak Avenue Extension found significant impacts at seven intersections, including Main Street/Pratt Avenue, Main Street/Elmhurst Avenue, Main Street/Pope Street-Mitchell Drive, Main Street/Grayson Avenue, Main Street/Sulphur Springs Avenue, and Silverado Trail/Pope Street. Analysis performed assuming completion of the Oak Avenue Extension found significant LOS impacts are three intersections, including Main Street/Pratt Avenue, Main Street/Elmhurst Avenue, and Silverado Trail/Pope Street. The Proposed Plan includes multiple policies and implementing actions that would seek to minimize this congestion on the transportation network through a series of efforts to reduce single occupancy vehicle trips, improve circulation throughout St. Helena, and promote walking, bicycling and transit trips as viable transportation options. It also contains multiple implementing actions that identify mechanisms for funding actions designed to alleviate transportation impacts resulting from new development under the Proposed Plan. Nevertheless, even with Proposed Plan policies and implementing actions, impacts at the above stated intersections would be significant.

Further, as Main Street is a State highway (SR-29), mitigation measures along Main Street are subject to Caltrans approval, and thus the construction of the mitigation measures cannot be guaranteed by the City. Additionally, the mitigation measures along Main Street and Silverado Trail may be considered infeasible due to lack of funds to design and construct adequate improvements to accommodate future traffic volumes or due to lack of sufficient right-of-way to construct needed improvements. Since the City cannot guarantee that the needed improvements will be implemented, the impact is deemed significant and unavoidable.

5.4 Significant Irreversible Environmental Change

CEQA Guidelines require an EIR to consider whether "uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely" CEQA Guidelines Section 15126.2(c)). "Nonrenewable resource" refers to the physical features of the natural environment, such as land or waterways. Irreversible changes and irretrievable commitments of non-renewable resources associated with the Proposed Plan include the following issues.

ENERGY SOURCES

New development under the Proposed Plan would result in increased energy use in the form of new buildings and transportation. Both residential and nonresidential developments use electricity, natural gas, and petroleum products for power, lighting, heating, and other indoor and outdoor services, while cars use either electricity or oil and gas. Use of these types of energy for new development would result in the overall increased use of nonrenewable energy resources. This could represent an irreversible environmental change. However, the State of California continues to set aggressive vehicle efficiency and renewable energy targets, including sourcing all electricity from zero-carbon sources by 2045. As regulations become more stringent over time, the energy impacts of the Proposed Plan may decrease.

CONSTRUCTION-RELATED IMPACTS

Irreversible environmental changes could also occur during the course of constructing development projects allowed under the Proposed Plan. New construction would result in the consumption of building materials, such as lumber, sand, and gravel for construction. Depletion of non-renewable resources that supply building materials would represent an irreversible environmental change.

AIR QUALITY

Increases in vehicle trips and traffic resulting from implementation of the Proposed Plan would potentially contribute to long-term degradation of air quality and atmospheric conditions in the region, other parts of California, and in the Western United States. However, technological improvements in automobiles, including the growth of the electric vehicle market share, may lower the rate of air quality degradation in the coming decades.

LOSS OF IMPORTANT FARMLAND

While the Proposed Plan prioritizes development in downtown infill areas, it redesignates 118 acres of current farmlands as urban land uses. Further, some new development may take place in Urban Reserve Areas, designated as Agriculture, once the areas within the Urban Limit Line are fully developed. Thus, if implemented, the Proposed Plan would lead to the development of land currently designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as classified by the California Farmland Mapping and Monitoring Program. These designations identify high quality agricultural resources, and the loss of these resources due to conversion of designated land to non-agricultural uses may be considered an irreversible environmental change.

5.5 Impacts Found Not to Be Significant

CEQA requires that an EIR provide a brief statement indicating why various possible significant impacts were determined to be not significant. Chapter 3 of this EIR discusses all potential impacts, regardless of their magnitude. A similar level of analysis is provided for impacts found to be less than significant as impacts found to be significant and unavoidable. Significance of an impact is assessed in relation to the significance criteria provided in each section in Chapter 3. A summary of all impacts is provided in the Executive Summary of this EIR.

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7 List of Preparers

A list of contributing City staff and consultant team members, their titles, and affiliations, is provided below.

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- Erica Ahmann Smithies, PE, Public Works Director/City Engineer

Consultants

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Dyett & Bhatia, Urban and Regional Planners

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- Jossie Ivanov, Associate
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- Ashlee Takushi, EIT, Engineer/Planner

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ST. HELENA
CALIFORNIA

St. Helena General Plan Update 2040

DRAFT ENVIRONMENTAL IMPACT REPORT APPENDICES

SCH# 2010042001

October 23, 2018

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Appendix A: Notice of Preparation and Comment Letters

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Note that for the purposes of this EIR, the numbering of the unincorporated study areas has changed from the original numbering in the Notice of Preparation (NOP). As described in Chapter 2.0: Project Description and shown in Figure 2.1-1, the study areas are numbered from north to south throughout the EIR. All other details regarding the study areas are unchanged.

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NOTICE OF PREPARATION

Program Environmental Impact Report
City of St. Helena General Plan Update

Date	April 2, 2018
To	Reviewing Agencies, Interested Parties, and Organizations
Subject	Notice of Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update and Scheduling of a Scoping Meeting on April 17, 2018

The City of St. Helena (City) is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) will be necessary to evaluate environmental impacts of this Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City will be the Lead Agency and will prepare the EIR. Attached are the Project description, location maps, and preliminary identification of the potential environmental issues to be explored.

The City is requesting comments and guidance on the scope and content of the EIR from responsible and trustee agencies, interested public agencies, organizations, and the general public (CEQA Guidelines §15082). If your agency is a responsible agency as defined by Section 15381 of the CEQA Guidelines, your agency may use the environmental documents prepared by the City when considering permits or approvals for action regarding the Project.

Public Scoping Period: April 2 to May 1, 2018

Responses and Comments: The City requests your careful review and consideration of this notice, and it invites any and all input and comments from interested agencies, persons, and organizations regarding the preparation of the EIR. Comments and responses to this notice must be submitted in writing to the Lead Agency Contact by 5:00 p.m. on May 1, 2018. If applicable, please indicate a contact person for your agency or organization.

Public Scoping Meeting: A scoping meeting will be conducted as part of the regularly scheduled Planning Commission meeting at 6:00 p.m. on **April 17, 2018** in the Vintage Hall Board Room on the St. Helena High School Campus (465 Main Street) to collect comments from agencies and the public on the scope and content of the EIR.

Lead Agency Contact: If you have questions regarding this NOP or the scoping meeting, please contact Noah Housh.

Noah Housh, Director
City of St Helena Planning and Community Improvement Department
1480 Main Street
St. Helena, CA 94574
E-mail: NHoush@cityofsthelena.org
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1 Project Contact Information

Project Title	St. Helena General Plan Update
Lead Agency Name	City of St. Helena
Contact Person	Noah Housh, Director Planning and Community Development
Address	City of St Helena 1480 Main Street St. Helena, CA 94574
Phone	(707) 968-2659
Email	NHoush@cityofsthelena.org
Project Sponsor Name and Address (same as Lead Agency)	City of St. Helena 1480 Main Street St. Helena, CA 94574

2 Project Location

Regional Context

St. Helena sits at the heart of the upper Napa Valley in Napa County, located approximately 65 miles north of San Francisco and 77 miles west of Sacramento. State Route (SR) 29 connects St. Helena to other communities in the Valley, including Calistoga to the north and Yountville, Napa, and American Canyon to the south. The regional context is shown in Figure 1.

Planning Area

The Planning Area is the land area addressed by the General Plan. Shown in Figure 1, the Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas. Although St. Helena does not have jurisdiction in areas outside of its city limits, the City currently provides limited municipal services, including utility service, public safety services, and recreation opportunities, to the three adjacent study areas. As such, what happens in those areas bears a relation to the City's planning and must be considered in the General Plan, per California Government Code Section 65300.

The three study areas include:

- **Study Area 1.** Located south of Chalk Lane immediately adjacent to the southeastern City limit, this area of approximately 100 acres comprises the spray fields currently used to dispose of treated effluent from the City's Wastewater Treatment Plant.

- **Study Area 2.** Comprising parcels with existing commercial and residential development fronting SR 29, this 185-acre area extends south from Chalk Lane to Zinfandel Lane. The City currently provides water utility service to many properties in this area, with the remaining structures relying on wells and individual septic systems of various ages and capacities.
- **Study Area 3.** This 165-acre area is located along the Napa River and includes residential development, the Meadowood Napa Valley resort, and City-owned utility infrastructure, including water tanks. The City provides water service to Meadowood and some of the residential development in the area.

The intent of including the three study areas within the Planning Area of the General Plan update is to document sensitive environmental resources and regulatory or capacity constraints associated with those areas.

3 Project Description

The Environmental Impact Report (EIR) will cover the St. Helena General Plan Update, referred to as the Proposed Plan. The following section provides background information on the Proposed Plan.

ST. HELENA GENERAL PLAN UPDATE

Background

The General Plan is a long-term policy document that establishes direction to guide future land use decisions, a framework to ensure the character and quality of development desired by the community, and the processes by which development and land use changes will take place. The State of California requires that every city and county adopt a general plan to guide decisions related to the conservation of natural resources, the physical form and character of future development, and public welfare and safety. The General Plan establishes the basis for the City's Zoning Ordinance, which serves as the legal regulatory code for land use and development within the City's jurisdiction. The policies set forth in the General Plan are not legally enforceable mandates, but rather provide the foundation for the design and application of important policy tools, such as the City's Urban Limit Line, design guidelines, and specific ordinances to protect St. Helena's ecological and biological resources.

The General Plan is used by City staff to review development proposals to ensure that subsequent projects align with the community's vision. The Planning Commission and City Council use the General Plan to guide decision-making that would impact the city's physical environment. The General Plan empowers the City, public agencies that work with the City, and private developers to invest in and design for a future that will enhance the character of the community and sustain and improve the quality of life, in accordance with the values and goals defined in the General Plan.

Project History

The City's current General Plan was adopted in 1993. In 2007, the City began the process of comprehensively updating the General Plan to more accurately reflect current conditions and the community's goals. From 2007 to 2010, the City worked to develop a complete draft update of the General Plan with the assistance of a General Plan Update Steering Committee (GPUSC) composed of St. Helena residents, and a team of consultants.

The initial development of the Proposed Plan involved four phases. The first phase took place between April 2007 and February 2008 and involved both a thorough analysis of existing conditions and a community visioning process. The existing conditions analysis resulted in a series of working papers that described current conditions and key policy issues for the topics of community vision, community character, circulation, economics, infrastructure, climate change, the natural environment, sustainability, and regional context. The community visioning process consisted of a telephone survey, workshops, an open house, and a public forum, dedicated to exploring the major issues and opportunities faced by St. Helena, and the desires of its community moving forward. This process resulted in a clear articulation of the community's desire to build a sustainable future, reflected in a community vision included in the Proposed Plan.

The second phase started in October 2008 and focused on policy and physical framework development. During this phase, the City worked actively with the GPUSC and the community to develop the General Plan goals, policies and implementing actions. The City launched its General Plan Update website and began publication of regular e-newsletters to keep community members informed of the process. The GPUSC met regularly during this stage, and hosted the first community workshop, a "land use and design charrette" aimed to explore key land use issues and opportunities. The City worked to refine existing land use maps, review background policy and technical documents, and analyze the existing General Plan Physical Framework and Land Use Element. The outcomes of this effort included identification of potential change areas in the city, identification of the likely impacts of this change, and the development of potential land use changes in the city.

In April 2009, the City began the third phase, developing the draft General Plan document. A series of eight GPUSC meetings were held to review drafts of the General Plan elements. Two community workshops were held to discuss community design and circulation in fall 2009. Additional community meetings were held to review the public review draft of the General Plan update in early 2010.

Beginning in the summer of 2010, the fourth phase of plan development focused on preparing draft General Plan documents for review by the Planning Commission and the City Council. As part of the planning process, the City prepared a Draft EIR to identify potential impacts of implementing the proposed General Plan Update 2030. The Draft EIR was released in August 2010, and a Final EIR including response to comments received was prepared in October 2010. Subsequently, the Planning Commission reviewed the draft General Plan and EIR in October of 2010, and recommended approval to the City Council; however, during City Council review, concerns were raised in relation to water supply and the Council decided to postpone action on the draft General Plan in order to address these concerns. A "Safe Yield Committee" was formed to develop a Water Management Program, which was adopted by City Council in November 2012. Since that time the

City Council and Planning Commission have continued to review the draft General Plan in an ongoing process involving a series of public hearings and study sessions, and have made subsequent recommendations for additional revisions to the draft document.

Current Effort

With incorporation of the Planning Commission's refinements to the 2010 Plan described above, the General Plan update is substantially complete; however, some additional refinements are necessary to ensure consistency and compliance with State law. In January 2018, the City began the effort to make these additional refinements and finalize the Proposed Plan. Revisions to the draft General Plan update will include the following:

- An updated horizon year of 2040;
- Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;
- Text revisions associated with new State requirements; and
- Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.

Proposed Plan Vision

The proposed community vision developed through the community engagement process early in the planning process remains valid today, and has been carried through to the current draft of the General Plan update:

With an eye toward the future while building on the assets of today, the community of St. Helena envisions that, in the year 2035, the town will be a well-integrated place, linked by effective community institutions, safe neighborhoods and streets, and superior schools, parks and public facilities.

The following concepts support this vision and provide guiding principles for fostering a physically, socially, economically and environmentally sustainable community:

- **Our Sustainable Community.** St. Helena will preserve its history while managing change. Its traditions of diversity, citizen involvement and responsive government will help the city plan for a sustainable future.
  - More people who work in town will be able to afford to live here, in a wide range of innovative, well-designed housing, available for residents of all ages and income levels.
  - St. Helena's historic and agricultural character will be honored and protected.
  - Expanded arts and cultural activities will continue to enrich community life.
  - High-quality schools and education for all ages will continue to be a focus of the community.

  - St. Helena's character will be strengthened through innovative design that maintains the scale and character of its existing neighborhoods.
  - Public spaces and civic facilities will be available for community gatherings, meeting the social and recreational needs of all ages and interests.
- **Our Stable Economy.** St. Helena's economy will meet the basic needs of residents, balance the benefits and effects of visitors and provide better economic opportunities.
  - Central St. Helena will remain the social, cultural and economic heart of town.
  - More of residents' daily needs will be met in the city by local businesses.
  - Vehicular, bicycle, and pedestrian circulation improvements will provide transportation choices, reducing automobile traffic and improving the quality of our city.
  - A combination of better regional connections and alternative modes of travel will improve circulation and traffic conditions, reducing congestion on Main Street.
- **Our Environmental Stewardship.** Environmental conservation, green choices and emissions reductions will be integrated into all areas of community decision making.
  - Through a combination of conservation and infrastructure improvements, water, and wastewater treatment will be available to meet community needs.
  - Green buildings and infrastructure, renewable energy installations and waste reduction will increase energy efficiency.
  - The riparian corridors of the Napa River, Sulphur Creek, and York Creek will be restored as critical assets.
  - Additional and improved parks, protected hillsides, agriculture, trees, locally grown food, and community gardens will contribute to our sustainable community.

Proposed Plan Contents

General Plan Elements

The Proposed Plan will include the following chapters, or elements, meeting the requirements for general plans under California Government Code §65302 for elements that a general plan must contain. Each element will contain related goals, policies, and implementing actions, as well as supporting background information.

- **Land Use and Growth Management.** This element presents a framework for decisions about allowable land use and desirable development patterns, aiming to manage growth effectively while encouraging innovative approaches, quality design, and infill strategies. It is anticipated that key policy goals for this element will include:
  - Managing growth and maintaining community character; and
  - Promoting high-quality and sustainable development.
- **Economic Sustainability.** This element recognizes the important role that economic sustainability plays in developing a sustainable economy that is responsive to short- and

long-term community concerns and objectives. It is anticipated that key policy goals for this element will include:

- Meeting residents' needs for housing, employment, goods. and services;
- Creating and implement an Economic Sustainability Strategy;
- Balancing the benefits and effects of visitors; and
- Generating revenue.

- **Public Facilities and Services.** This element sets forth policy guidance for the provision of services, amenities, and infrastructure. The focus is on policies related to water, wastewater, storm drainage and flooding, solid waste, schools and libraries, fire and police. It is anticipated that key policy goals for this element will include:
  - Ensuring high-quality public services and facilities; and
  - Promoting sustainable standards and practices.
- **Circulation.** This element establishes the policies needed to foster a comprehensive and multi-modal transportation network. The element addresses the principal components of the circulation system, as well as issues relating to parking, transit, and pedestrian and bicycle routes in order to ensure the City can meet current and future transportation needs with a balanced, multi-modal transportation system.
- **Historic Resources.** This element presents a framework for governing future decisions about rehabilitating, retrofitting, and adaptively reusing the City's historic buildings. It is anticipated that key policy goals for this element will include:
  - Maintaining St. Helena's sense of place and visual character;
  - Preserving and protecting St. Helena's historic resources; and
  - Celebrating St. Helena's distinct history and heritage.
- **Community Design.** This element presents a policy framework that corresponds directly with other General Plan elements in determining the form, quality, and character of St. Helena's built environment. It is anticipated that key policy goals for this element will include:
  - Respecting St. Helena's historic character and unique sense of place;
  - Promoting a high-quality and sustainable built environment and public realm;
  - Encouraging community design throughout the city that helps to build community, encourage human interaction, and support non-automobile transportation;
  - Strengthening the city's neighborhoods so that they retain desirable characteristics, while allowing for smart change and evolution.
- **Open Space and Conservation.** This element guides future decisions about sustaining a healthy network of open spaces and protecting natural resources for future generations. It is anticipated that key policy goals for this element will include:
  - Preserving, enhancing, and restoring natural resources;
  - Ensuring stewardship of water resources; and

  - Expanding sustainable agricultural practices.

- **Public Health, Safety, and Noise.** This element presents a framework for minimizing risks posed by environmental and human-caused hazards that may impact St. Helena's health and welfare. This element aims to ensure that residents, workers and visitors are protected from negative exposure to flooding, fires, hazardous materials, air pollution, and geologic and seismic hazards. It is anticipated that key policy goals for this element will include:
  - Maintaining high levels of health and safety; and
  - Effectively coordinating responses to emergencies and natural disasters.
- **Climate Change.** This element is the City's policy framework for responding to and planning for climate change, addressing the City's energy conservation concerns, renewable energy production and use, and transportation-related concerns. It is anticipated that key policy goals for this element will include:
  - Increasing citywide transportation-related energy efficiency;
  - Reducing energy demand through improved building and design;
  - Reducing consumption and diverting waste;
  - Ensuring the sustainable management of agriculture, natural resources, and urban forests;
  - Increasing community engagement and advocacy; and
  - Improving the efficiency of local government operations.
- **Parks and Recreation.** This element presents a framework for developing and maintaining a comprehensive system of quality parks, pedestrian and bicycle trails, and recreational facilities and programs. It is anticipated that key policy goals for this element will include:
  - Providing high-quality parks and recreational services; and
  - Developing a system of interconnected bicycle and pedestrian trails.
- **Arts, Culture, and Entertainment.** This element aims to preserve and protect St. Helena's unique identity, heritage, and cultural resources; celebrate its vibrant community; and expand opportunities for arts enrichment. It is anticipated that key policy goals for this element will include:
  - Celebrating arts, culture, and entertainment;
  - Strengthening and expanding arts, culture, and entertainment; and
  - Honoring culture and heritage.

The Housing Element, while a required element of the City's General Plan, is not included in the Proposed Project being considered in this EIR. Per the requirements of the California Department of Housing and Community Development, St. Helena's Housing Element was last updated and adopted in May 2015 (covering the period from 2015-2023) and underwent environmental review at that time.

Key Components of the Proposed Plan

The Proposed Plan will be released for public review in parallel with the Draft EIR. As described above, the content builds on the 2010 Draft General Plan and will incorporate recommended refinements from a series of public hearings held in 2016 and recently in 2018. Key components of the Proposed Plan will include:

- A new Mixed Use General Plan Land Use designation, intended to encourage a mix of uses at infill locations in central St. Helena and provide for housing opportunities in close proximity to services and retail, thus reducing both development pressures along the Urban Limit Line and greenhouse gas emissions.
- Capital improvements to expand the existing bicycle network in order to provide safe and convenient bicycle access to parks, open spaces, commercial areas, residential neighborhoods, and community facilities. The expanded network is intended to encourage the use of bicycles as a non-automotive means of transportation to help alleviate congestion and parking concerns, reduce overall vehicle miles traveled in the city, and promote health.
- Updates and additions to ensure consistency with the latest State guidelines.

4 Environmental Impact Report

The EIR will analyze the potential environmental consequences of adopting the Draft General Plan. It will discuss how goals, policies, and implementing actions of the Draft General Plan may affect the environment, identify significant impacts, and recommend measures to mitigate those impacts. It will also evaluate the cumulative impacts and potential growth-inducing impacts of the Draft General Plan. The EIR will consider the environmental impacts of feasible alternatives that could attain most of the basic Project objectives while avoiding or reducing any of the Project's significant adverse environmental effects, including the "No Project Alternative" (continued implementation of the 1993 General Plan). Additionally, the EIR will identify an environmentally superior alternative.

The environmental assessment will utilize the most current guidelines for CEQA and for each issue area. The EIR will contain comprehensive environmental analysis and mitigation measures in order to facilitate CEQA streamlining and tiering opportunities for future projects consistent with the General Plan Update, whether in accordance with provisions of SB 375 or other tiering and exemption provisions in CEQA. Community members can provide input at several points in the EIR process: in response to this Notice of Preparation (where comments are solicited on the scope and content of the EIR); in response to the Draft EIR itself when that document is released for public review (when comments are solicited on the analysis and conclusions of the EIR); and at public hearings before the Planning Commission and City Council for certification of the EIR.

5 Potential Environmental Impacts to Be Considered

The EIR will evaluate potentially significant environmental impacts associated with the adoption and implementation of the Proposed Plan. Consistent with the State CEQA Guidelines (Appendix G), the following environmental resource categories will be analyzed in relation to the Project:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Energy, Greenhouse Gas Emissions, & Climate Change
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Cultural and Tribal Resources
- Hydrology and Water Quality
- Land Use, Population, and Housing
- Mineral Resources
- Noise
- Parks, Public Services & Recreation
- Public Utilities
- Transportation

All of the resource categories listed above will be considered in the EIR; however, given the local context of St. Helena, the following issues will be central to the environmental analysis:

- Agricultural resources, due to the agricultural characteristics and presence of prime and important farmland in and around the Planning Area;
- Biological resources, due to the presence of open space areas that could support habitats and wildlife corridors;
- Hydrology and water quality, due to the presence of waterways such as the Napa River, Sulphur Creek, and York Creek;
- Traffic, due to the reliance on SR 29 as a main thoroughfare and regional connection; and
- Public utilities, due to the importance of stable and secure water supply over the course of the planning process.

Additionally, CEQA allows environmental effects for which there is no likelihood of a significant impact to be "scoped out." Given the lack of mineral resource recovery sites and known deposits within the Planning Area, effects related to mineral resources have been determined not to be significant. Full documentation of the factual basis for this determination will be included in the EIR. Unless specific comments are received during the NOP public comment period that indicate a potential for the Project to result in significant impacts, these less than significant effects will be addressed briefly in the EIR and "scoped out."

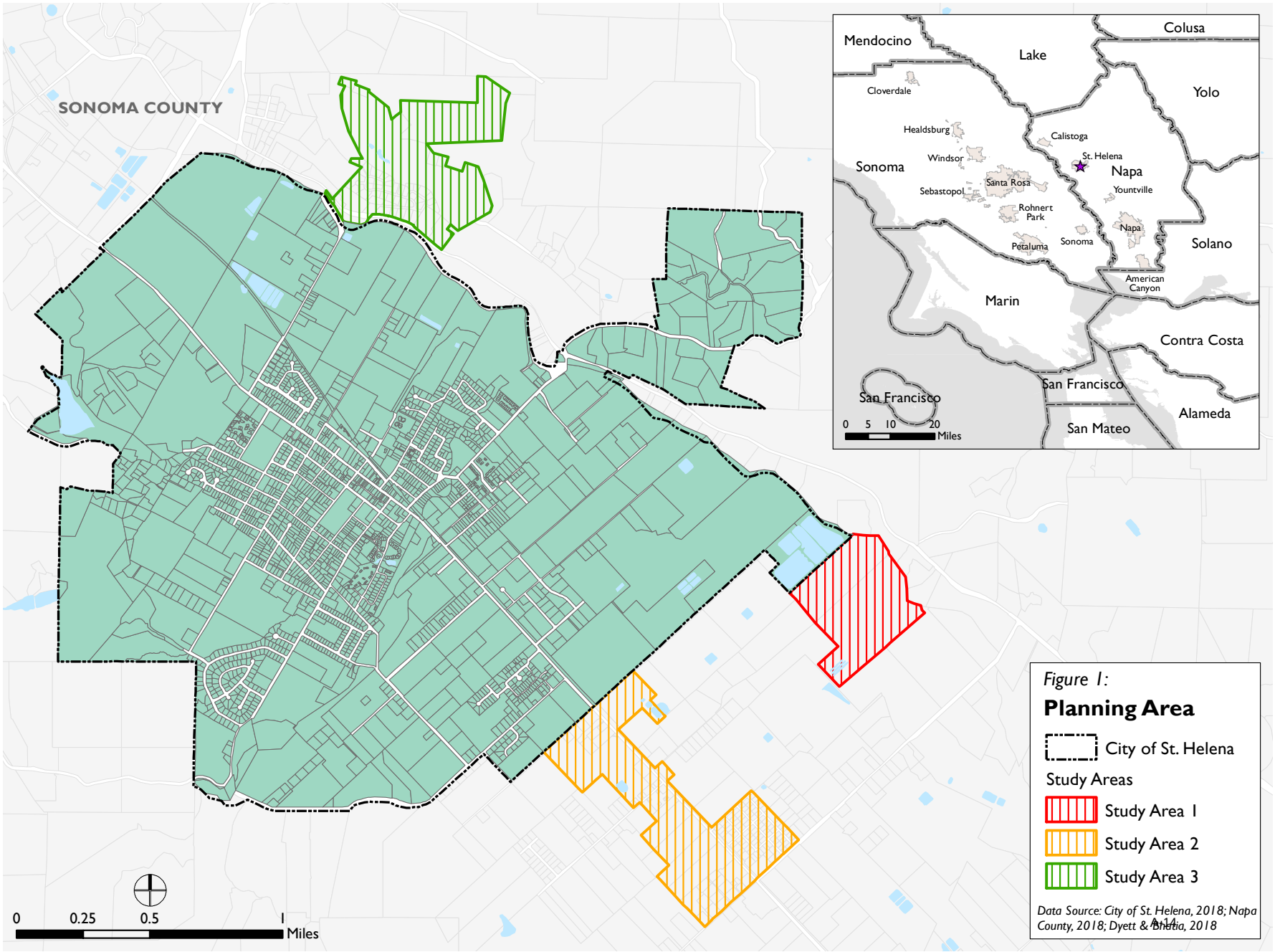
6 Public Meetings

The City of St Helena will conduct a scoping meeting on the Project in accordance with CEQA Section 21083.9. The scoping meeting is an opportunity for public agencies and interested members of the general public to learn more about environmental review for the Project and to comment on the environmental issues to be addressed in the EIR.

Date: Tuesday April 17, 2018

Time: 6:00p.m.

Place: Vintage Hall Board Room
St. Helena High School
465 Main Street


SONOMA COUNTY
Mendocino
Lake
Colusa
Yolo
Cloverdale
Healdsburg
Calistoga
St. Helena
Windsor
Sonoma
Napa
Sebastopol
Santa Rosa
Yountville
Rohnert Park
Napa
Petaluma
Sonoma
Solano
American Canyon
Marin
Contra Costa
San Francisco
San Francisco
Alameda
San Mateo
0 5 10 20
Miles
0 0.25 0.5 1
Miles
Figure 1:
Planning Area
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018

April 30, 2018

SCH #2010042001
GTS # 04-NAP-2016-00105
GTS ID: 119
PM: NAP – 29 – 30.06

Mr. Noah Housh
City of St. Helena
1480 Main Street
St. Helena, CA 94574

St. Helena General Plan Update – Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR)

Dear Mr. Housh:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the St. Helena General Plan Update. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans' mission signals a modernization of our approach to evaluate and mitigate impacts to the State Transportation Network (STN). Caltrans' *Strategic Management Plan 2015-2020* aims to reduce Vehicle Miles Traveled (VMT) by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the April 2, 2018 NOP.

Project Understanding
The General Plan is a long-term policy document that establishes direction to guide future land use decisions, a framework to ensure the character and quality of development desired by the community, and the process by which development and land use changes will take place. The City's current General Plan was adopted in 1993. In 2007 the City began the process of comprehensively updating the General Plan. This update includes the Land Use and Circulation Elements. State Route (SR) 29 is Main Street in St. Helena; it is the sole State Highway in the City, and provides regional access to the rest of the Napa Valley.

Smart Growth
Caltrans applauds many of the goals stated in the various elements of the general plan to be updated, including promoting high-quality and sustainable development, capital improvements to expand the existing bicycle network, and a focus on promoting mixed use and infill

development.

As this project has identified multiple goals which coincide with those of the MTC's SCS, Caltrans suggests that to meet local and regional housing goals, the Lead Agency consider establishing a Priority Development Area (PDA) within the City where appropriate. St. Helena does not feature high-frequency peak bus operations, nor does it have a requisite rail st The Lead Agency should work with the Napa Valley Transportation Authority and other relevant stakeholders to improve transit service in St. Helena, and improve regional access to population and employment, and transit centers including the Soscol Gateway Transit Center in Napa.

Transportation Impact Analysis
The Transportation Impact Analysis for the General Plan Update, and associated projects should be conducted using current data and methodology. Furthermore, Caltrans is switching to VMT as its metric for transportation impacts. We suggest that the lead agency also adopt VMT, and establish VMT thresholds for the proposed General Plan Update and its associated projects.

Analysis of alternatives should discuss buildout of potential transit improvement projects proposed for the horizon period of this General Plan Update. This should address future rapid-bus service in Napa Valley or expanded rail service along the Wine Train corridor.

Multimodal Planning
The *Caltrans District 4 Bike Plan (Bike Plan)* identifies a low tier project to install bike boxes at the intersection of SR 29 and Pope Street. The *Bike Plan* identifies SR 29 in St. Helena as a higher (three on a zero to four scale) Level of Traffic Stress (LTS) segment. Reducing LTS is an important factor in meeting Caltrans *Strategic Management Plan* goals and reducing local and regional VMT. The EIR should identify further how cumulative impacts affecting cyclists and pedestrians will be analyzed and mitigated.

To address congestion, air quality, and road safety, the Circulation Element should include language describing the City's strategies for decreasing VMT by improving and expanding visitor and commuter transit service and active transportation facilities. This should include identifying gaps in the pedestrian and bicycle network, and unmet transit need.

The plan's primary and secondary effects on pedestrians, bicyclists, disabled travelers and transit users should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access for pedestrians and bicyclists to transit facilities must be maintained. These smart growth approaches are consistent with MTC's Regional Transportation Plan/Sustainable Community Strategies and would help meet Caltrans Strategic Management targets.

Vehicle Trip Reduction
From Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade*, the City of St. Helena is identified as **Place Type 5a: Rural Towns** where location efficiency factors, such as community design, are moderate to high and regional accessibility is low. As a hub for Napa

Valley's wine production/tourism industry, strategies should be adopted to promote active transportation, and the use of multi-passenger vehicles for visitors, residents, and employees.

The General Plan update should identify community design components and land use policies that will facilitate access to local and regional activity centers, and reduce VMT. These strategies can include zoning amendments to reduce lot size and promote infill development, as well as requirements that streets associated with new developments be built in a fashion to connect with and expand a walkable grid network, rather than cul-de-sacs. This would provide well-connected low-stress local streets that would promote walking and cycling, and reduce VMT on the STN for local trips.

The tourism industry is a major VMT generator for the City of St. Helena, the General Plan Update should include an analysis of strategies to reduce local and regional VMT, which identify funding, potential demand, and implementation strategies including:

- Free shuttles serving hotels, wineries, and other regional destinations;
- Expanded service using the Napa Valley Wine Train facilities;
- Development of a Transportation Management Association consisting of local hotels, wineries, and other major employers;
- Improved regional transit access for residents and employees.

The plan should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions. Such measures are critical to facilitating efficient circulation. The measures listed below will promote smart mobility and reduce regional VMT.

- Project design to encourage walking, bicycling and transit access;
- Transit and trip planning resources such as a commute information kiosk;
- Real-time transit information system;
- Transit subsidies on an ongoing basis;
- Ten percent vehicle parking reductions;
- Charging stations and designated parking spaces for electric vehicles;
- Carpool and clean-fuel parking spaces;
- Designated parking spaces for a car share program;
- Unbundled parking;
- Showers, changing rooms and clothing lockers for employees that commute via active transportation;
- Emergency Ride Home program;
- Employee transportation coordinator;
- Secured bicycle storage facilities;
- Fix-it bicycle repair station(s);
- Bicycle route mapping resources;
- Participation/Formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area; and
- Aggressive trip reduction targets with Lead Agency monitoring and enforcement.

Transportation Demand Management programs should be documented with annual monitoring reports by an onsite TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to take in order to achieve those targets. Also, reducing parking supply can encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on State facilities. These smart growth approaches are consistent with the MTC's Regional Transportation Plan/SCS goals and would meet Caltrans Strategic Management Plan sustainability goals.

For additional TDM options, please refer to the Federal Highway Administration's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference* (Chapter 8). The reference is available online at: http://www.ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf.

The Lead Agency should identify project-generated travel demand and estimate the costs of transit and active transportation improvements necessitated by the projected growth; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multimodal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

The City should also ensure that a capital improvement plan identifying the cost of needed improvements, funding sources, and a scheduled plan for implementation is prepared along with the environmental document.

Lead Agency

As the Lead Agency, the City of St. Helena is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the state ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating state ROW must be submitted to: Office of Permits, California DOT, District 4, P.O. Box 23660, Oakland, CA 94623-0660. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process. See the website link below for more information: http://www.dot.ca.gov/hq/traffops/developserv/permits/.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Jake Freedman at 510-286-5518 or jake.freedman@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

From: Peter Scott [mailto:peterrscott@msn.com]
Sent: Tuesday, May 01, 2018 6:45 PM
To: Noah Housh
Cc: Mark Prestwich
Subject: Public Comment: Notice of Preparation of a Draft Environmental Impact Report for the City

Dear Noah,

The following is my public comment regarding the Planning Department Notice of Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update.

RE: Industrial Zone on Southeast side of St. Helena (map attached)

Comment:
The Industrial Zone located on the southeast side of St. Helena is an outdated land use that poses health, safety, and environmental risks in addition to causing an economic drain on the city's tax base under this current zoning. This land needs to be re-evaluated by the city for its best and most economic use as part of St. Helena's 2040 General Plan.

History:
The designation of this land as an industrial zone was viable when zoning laws were established over 60 years ago. As far back as 100 years ago, this land, which was initially remote from St. Helena's residential and civic activity, was used primarily to mine gravel from Sulphur Creek. Several mining operators including the current established concrete batching business of Harold Smith and Son, mined Sulphur Creek up until the late 1990's. Arguably much of this gravel mining and excavation activity conducted before the establishment of mining regulations and environmental agencies, has resulted in the silt and mineral buildup in eastern reach of Sulphur Creek today. Unquestionably riparian corridors along the creek and fish species have been adversely affected by these years of mining. As recently as 1999, Harold Smith and Son ceased their mining operations after being cited for violations from the CA Regional Water Quality Board (attached).
In the 1960's Harold Smith and Son sold a portion of their land north of their current operations for the development of housing south of Spring Street encompassed Birch St., Olive, Hudson, and Valley View. Many of these residential homes were built and approved by the city with a zero-lot line where backyards directly abut the heavy industrial operations from Harold Smith and Son. This has been a source of neighborhood friction between these incompatible zones for decades that continues today.
Further, as St. Helena has expanded, this once rural industrial zone is now surrounded by more residences, a new Primary School, an expanded High School, activities in Crane Park, increased vehicle traffic, bicycle lanes, pedestrians, and children. Clearly, given the close proximity of industrial noises, operations, and heavy vehicles, this poses a public health and safety issue.

Additionally, as the attached map indicates, this Industrial Zone lies in a 100-year flood plain, which limits potential development and land use. Pictures from the recent storms in 2017 shows just how close the level of Sulphur Creek came to breaching the mountains of aggregate, dirt and rocks piled on the banks of HSS property.

Present:
In addition to Harold Smith and Son, this Industrial Zone expanded to include the operations of A&J Vineyard Supply, and Marvin's Garage Auto repair to the north. East of HSS is the city corporation yard and other low- impact commercial businesses along Charter Oak.
Since Harold Smith incorporated in this location prior to the establishment of zoning laws, their business operates under a restrictive non-conforming use further requiring a special use permit for concrete batching.
Per St. Helena Municipal Code (attached): "The following uses require approval of a use permit as regulated by Chapter 17.168:
All uses or expansion of existing uses proposed for industrial property that is located adjacent to property zoned for residential use. "Adjacent to" shall be defined to include properties with a common property line or properties directly across a street. "Property zoned for residential use" shall be defined as that property zoned LR low density, MR medium density, or HR high density residential;
Asphalt batch, cement and concrete plants;"

Our City Code places clear and restrictive language when it comes to operators in non-conforming zones (Attached Chapter 17.140 NONCONFORMING USES, BUILDINGS, STRUCTURES, LOTS AND SIGNS); particularly as it relates to business expansion, changes in operations, abandonment, noise, and public nuisance. I have observed and documented many violations of these permitted use ordinances from Harold Smith and Son that the city has failed to enforce.

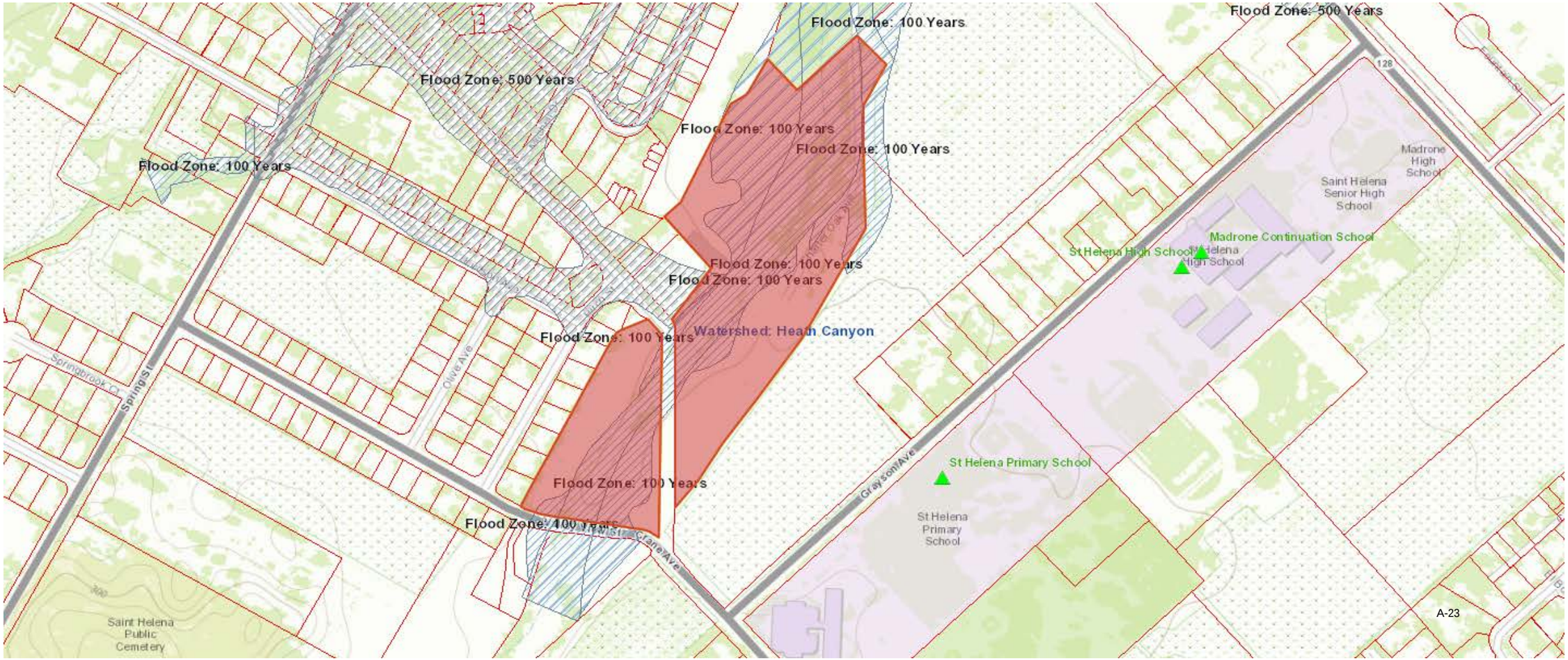
More importantly, the restricted use ordinances associated with businesses operating under a non-conforming use permit, limits the ability of those businesses from expanding their operations. Case in point; Harold Smith and Son frequently has to request after hours special use permits to satisfy their business growth at the expense of their residential neighbors. Another example is new heavy impact rock crushing equipment results in noise levels exceeding allowable decibels limits for their use permit. Again, causing neighbors to pay the price for HSS business growth. Finally increased multi-ton traffic from mixer and dump trucks traveling back and forth on residential streets poses a very real safety risk. Perhaps equally as detrimental to public safety is the dozens of trips made each week in and out of the tiny yard of A&J Vineyard Supply by 40 to 45-foot tractor trailer trucks traversing neighborhoods each and every week. The result is an untenable situation for all involved.

In short, this Industrial Zone has outlived its intended purpose to the point where it is causing health, safety, environmental and economic issues for residents, and it is restricting the ability of the operators in the zone to expand their businesses. This is a high friction area in St. Helena that needs to be addressed.

I don’t think anyone would say that continuing to operate a heavy industrial zone next to expanding residences, schools, parks, cyclists, and pedestrians is a good idea. Indeed, it runs counter to many of the goals and vision elements of the 2040 General Plan.

The city owes it to their citizens and these businesses to find a solution that allows these industrial operators to expand in an appropriate relocation and it needs to protect the health safety and economic welfare of the public.

Thank you.
Peter Scott
1905 Birch St.
St. Helena, CA
707-225-1282


Flood Zone: 500 Years
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Flood Zone: 500 Years
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Flood Zone: 100 Years
Flood Zone: 100 Years
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Flood Zone: 100 Years
Watershed: Heath Canyon
Flood Zone: 100 Years
Flood Zone: 100 Years
Flood Zone: 100 Years
Springbrook Ct
Spring St
Olive Ave
Grayson Ave
Crane Ave
128
Madrone High School
Saint Helena Senior High School
Madrone Continuation School
St Helena High School
St Helena High School
St Helena Primary School
St Helena Primary School
Saint Helena Public Cemetery
A-23

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STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

CLEANUP AND ABATEMENT ORDER NO. 99-016
HAROLD VAROZZA
JERYL AND LERYL SMITH
800 CRANE ROAD, ST. HELENA, NAPA COUNTY, CALIFORNIA

The California Regional Water Quality Control Board, San Francisco Bay Region (the Board), finds that:

I . Harold Varozza, d.b.a. Harold Smith and Sons, owns and operates a concrete batch plant and gravel quarry. According to the County Tax Assessor, the land where the batch plant is located is owned by Jeryl and Leryl Smith (Assessors PN 009-392-035); whose mailing address is 1853 Fir Hill Drive, St. Helena, CA 94574. Harold Varozza and the Messrs. Smith are jointly referred to as "dischargers". The batch plant is located at 800 North Crane Road, St. Helena, Napa County.

2. On February 3, 1999, Board staff conducted a joint inspection with the California Department of Fish and Game (DFG) of the above property. Staff inspected the batch plant yard, a gravel washing area located directly across Sulphur Creek and a waste piles on the southern bank of Sulphur Creek. Staff observed several conditions that were in violation of the Porter-Cologne Water Quality Control Act (Water Code) and the federal Clean Water Act.

3. This Order addresses concrete waste, wastewater and wash water originating at the batch plant that exhibits elevated pH levels, excessive alkalinity and excessive fine sediments which have been illegally discharged to Sulphur Creek, a water of the State and the United States.

4. Primary deficiencies involve: a) illegal discharge. of waste and polluted stormwater from the sump associated with the batch plant loading and concrete truck washout areas; b) illegal discharge of gravel and concrete truck wash water from the sedimentation pond associated with the gravel washing plant area; and
c) discharge of concrete waste to the banks of Sulphur Creek (waste piles).

5. **Batch** @ Arn Staff observed stormwater runoff containing concrete sediment material in the drain pipes from the batch plant sump draining to Sulphur Creek. Staff observed this during inspections on both February 3 and February 17, 1999. There are several potential sources of concrete-containing waste water in the batch plant area:.

a) The batch plant tower is a si@ficaxit source of concrete dust which settles **in** the immediate vicinity. The puddles in the batch plant parking area had a pH above 12.

b) The batch plant parking area and wash rack drains to Sulphur Creek via a "sump". Staff observed that at the batch plant, waste water and polluted stormwater in this area generally drains to a "sump" which subsequently drains directly to the creek via two 12-inch culverts.

c) The wastewater "sump" is composed of concrete aggregate and gravel and excavated into bank gravels; hence it is highly permeable. As such it has the potential to pollute shallow groundwater which in turn will drain to the creek.

6. **Gravel Washing Sediment** @ The dischargers also extract gravel from Sulphur Creek on a seasonal basis. Gravel is sorted and washed at a facility located on the south of the batch plant on the other side of the creek. A sedimentation pond, which is part of the gravel washing operation, is located on the south bank of the creek. . On February 3, and February 17, 1999, Board staff observed a hose next to the pond that DFG staff stated had been used to pump the pond into the creek. The sedimentation pond drains to the creek. Staff observed that concrete waste was washed from trucks into the sedimentation pond, thereby comingling concrete slurry with fine sediments. DFG staff stated that a hose for draining the sump was visable during their inspection.

7. **Waste** @ Concrete waste of a high pH was discharged on the west bank of the creek where the waste was found as a semi-solid, caked fine sediment or as an aggregate where the liquid associated with this waste had **a** high pH. This waste has a high potential to runoff to the creek during even slight rainfall events. Some fine-grained concrete waste was observed in bed of the creek, below the waste pile.

8. DFG notified one of the dischargers (Harold Smith and Sons) by letter (February 9,1999) of Fish and Game Code violations. The violations pertain to illegal discharge of a pollutant [Fish and Game Code Section 5650(a)].

9. The San Francisco Bay Basin Water Quality Control Plan (the Basin Plan) defines the existing and potential beneficial uses for San Francisco Bay and contiguous surface waters. Sulphur Creek is a tributary to the Napa River. The existing and potential beneficial uses of the Napa River include: cold freshwater habitat; fish migration; rare and endangered species; contact and non contact water recreation; fish spawning; warm freshwater habitat and wildlife habitat.

10. The inspections and conditions described in Findings 2 through 8 indicate that concrete batch plant operations at the batch plant discharge to waters of the State and the United States. Such discharges occur even through the dischargers have not filed to be covered under the State Board's General Permit for Ston-n Water Discharges Associated with Industrial Activity (General Permit), and in violation of the terms of the General Permit.

12. Based on the above findings, the Board finds that the dischargers have caused or permitted waste to be discharged or deposited where it can be and has been discharged into waters of the State and created and threatened to continue to create a condition of pollution. This Order, therefore, contains tasks for investigating and mitigating existing and potential future impacts to the creek and other waters of the State, as described in the aforementioned findings.

13. This Order is an action to enforce the California Water Code and as such is exempt from the California Environmental Quality Act, pursuant to Section 15321(a)(2) of Title 14, California Code of Regulations.

14. Pursuant to Section 13304 of the California Water Code, the dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharge of waste and to oversee cleanup of such waste, abatement of the effect thereof, or other remedial action, required by this Order.

IT IS HEREBY ORDERED, pursuant to Section 13304, of Division 7 of the California Water Code, that the dischargers shall cleanup the waste discharged, abate the effect of the discharge, and take other remedial actions as follows:

A. Prohibition

The discharge of waste or hazardous materials that will degrade, or threaten to degrade, water quality or adversely affect, or threaten to affect beneficial uses of the waters is prohibited.

B. Provisions

I *Task 1:* By August 1. 1222, the dischargers shall submit a Notice of Intent (NOI) to be covered under the NOI General Permit (attached). The NOI shall be sent via certified mail to the State Water Resources Control Board, P.O. Box 1977, Sacramento, CA 95812-1977, Attention: Storm Water Permitting Unit, and shall be accompanied by the one time application fee of $2000 made payable to the State Water Resources Control Board. A copy of the NOI shall be submitted to this Board.

Task 2: By August 1. 1 M, the dischargers shall submit a report, acceptable to the Executive Officer, containing a description, with a map, of mitigative control measures designed to bring the batch plant into compliance with the State's minimum discharge standards. Such mitigative control measures shall include management practices to divert clean storm water runoff, and to collect and contain storm water contacting concrete product and waste. The report shall include an implementation time schedule. However, implementation of the mitigative control measures shall be completed no later than September 1, 1999.

Task 3: By August 1. 1999, the dischargers shall submit a report to this Board confirzning that all sources of concrete wastes, wastewaters and concretecontaining liquids to waters of the State at all facilities and areas of the batch plant that pose a threat of such discharge have been removed, relocated, and or contained within impervious impoundments. Such removal, relocation and or containment shall at a minimum address:

a) Potential or existing reactive concrete-containing wastes and waste associated with the following known problem areas: 1) the piles of concrete waste located upstream of South Crane Road on the banks of Sulphur Creek including down gradient areas within the bed of the Creek;
2) the batch plant area including the wastewater sump; 3) the

sedimentation pond adjacent to the gravel washing plant; 4) the area adjacent to the outlet of the drainage pipes that drain the batch plant area into Sulphur Creek; and 5) any other areas that have the potential to contribute wastes to the creek.

b) All other facilities and areas that are actual **or** potential sources of concrete waste, concrete wastewater and wash water, **or** sediment pollution.

Task 4: By **September 15, 1999,** the dischargers shall implement a monitoring program which will be used to demonstrate the effectiveness of coffective actions in preventing concrete waste, wastewater, storm water contacting concrete product or waste, or any other deleterious substance from being discharged to waters of the State. The water quality monitoring parameters, sampling locations and sampling frequency are described below. The results of the monitoring program shall be submitted to the Board's Executive Officer on **a** monthly basis. The monthly monitoring reports shall be postmarked within 45 days of the sampling month (e.g., sampling results for September shall be submitted by October 15).

Monitoriniz Parameters

At a minimum, water samples from Sulphur Creek and the drainage channel that passes alongside the wastewater sump shall be analyzed for the following water quality parameters: pH (by titration), Total Alkalinity, Carbonate, Bicarbonate and Hydroxide Alkalinity, Temperature, and Total Suspended Solids.

Monitoring Stations

At a minimum, water quality samples shall be collected at each of the following locations:

1) From the storm water drain pipe(s) for the batch plant- At the point where there is **a** discharge to the creek or to the City stormdrain if so installed.

2) From Sulphur Creek upgradient of the waste disposal area at the west end of the dirt access road.

3) From Sulphur Creek immediately downgradient of its confluence with the storm water drain pipe.

Monitoring FreQ.uency

a) Samples shall be collected at the above stated locations during every storm event that produces greater than 0.5 inches of rain as measured by the National Weather Service at St. Helena, or when surface water is present in puddles and draining from the batch plant area. During periods of "tended runoff, samples shall be taken at least once every two weeks.

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Harold Smith and Sons, St. Helena
Cleanup and Abatement

b) A pH mete r and continuous (strip) recorder shall be installed at the point of sump discharge. The recorder shall be housed in a locked box and records shall be submitted monthly to Board and DFG staff.

Water quality sampling shall continue throughout the year as long as there is water in Sulphur Creek. Once the 1999/2000 wet season is over, if water is not present in the creek and the dischargers have demonstrated the effectiveness of corrective actions implemented, the dischargers may propose to the Board's Executive Officer for consideration of a less rigorous monitoring program.

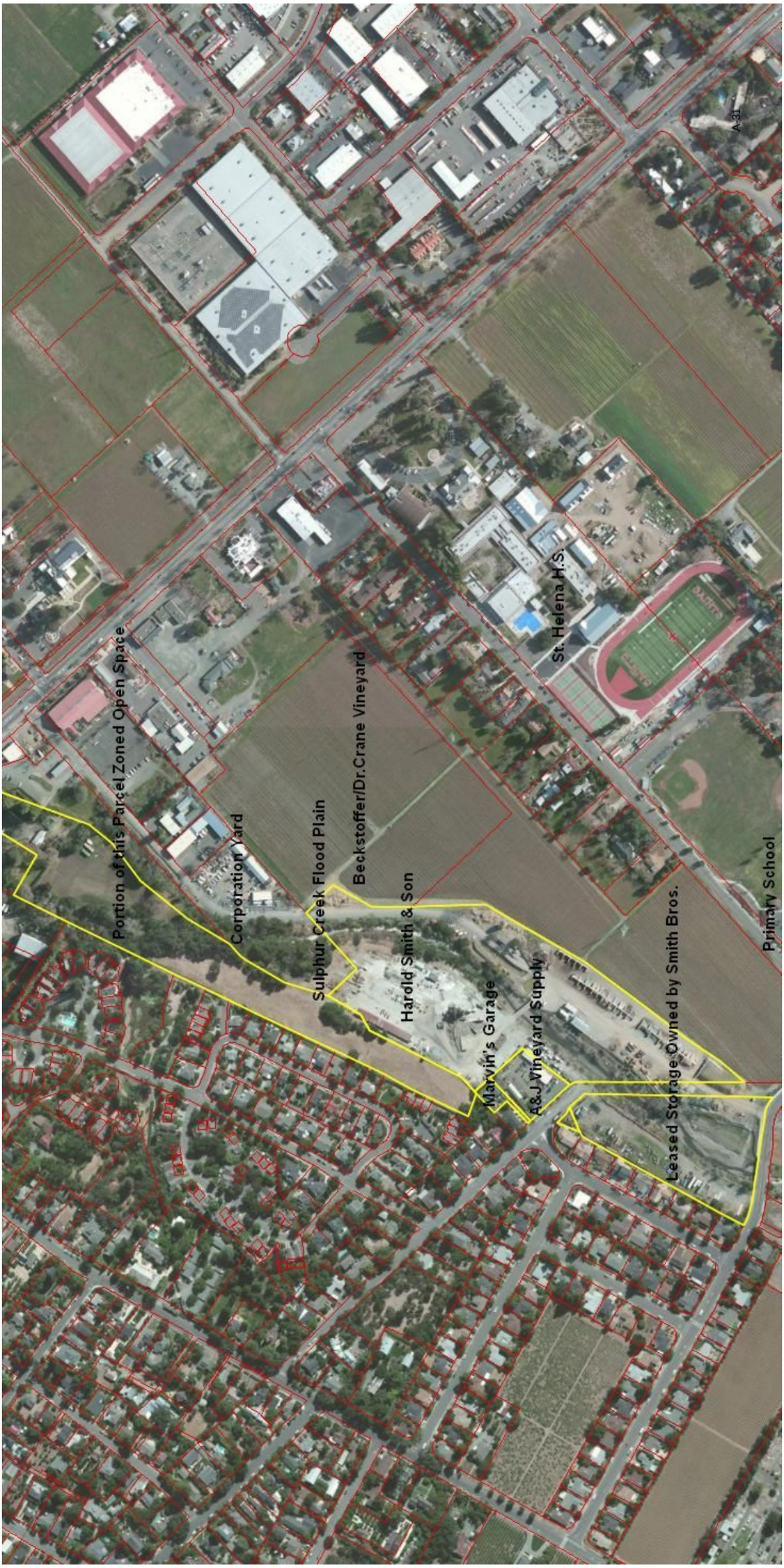
2. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Regional Board Executive Officer in writing with recommended revised completion dates for consideration for revisions to this Order.

3. As described in Finding 13 above, upon receipt of a billing statement for costs incurred pursuant to Section 13304 of the California Water Code, the dischargers shall reimburse the Board.

Pursuant to California Water Code Sections 13304 and 13350, if a dischargers fails to comply with the provisions of this Order, the Board may schedule a hearing to consider assessing civil monetary penalties and to consider requesting the Attorney General to take appropriate enforcement action against the dischargers, including injunctive and civil monetary remedies. However, this Order does not preclude the Board from taking appropriate enforcement action for past violations of the California Water Code.

tl&@ *gag*

Loretta k. BarsaVian Di(te
Executive Officer


Portion of this Parcel Zoned Open Space
Corporation Yard
Sulphur Creek Flood Plain
Beckstoffer/Dr.Crane Vineyard
Harold Smith & Son
Marvin's Garage
A&J Vineyard Supply
Leased Storage Owned by Smith Bros.
St. Helena H.S.
Primary School
A-31

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Chapter 17.60
INDUSTRIAL (I) DISTRICT

Sections:

17.60.010 Purpose.

17.60.020 Permitted uses.

17.60.030 Conditional uses.

17.60.040 Design review required.

17.60.050 Accessory uses, buildings and structures.

17.60.060 Prohibited uses.

17.60.070 Development standards.

17.60.080 Other uses, standards and requirements.

17.60.010 Purpose.

The industrial district (I) designation provides for industrial parks, warehouses, light manufacturing, auto and farm-related equipment sales and repairs, viticulture and winery support services and similar and compatible uses. (Prior code § 27.100)

17.60.020 Permitted uses.

The following uses are permitted within the district, except that new uses or expansion of existing uses proposed for industrial property that is located adjacent to property zoned for residential use shall require a use permit, as defined in Section 17.60.030.

Building material display rooms;

Carpentry, cabinet and sign shops;

Catering establishments including retail sales of items prepared on the premises;

Commercial laundries, rug cleaners;

Contractors' offices and yards;

Crop services;

Dry cleaners;

Farm equipment sales and repair;

Feed, grain and farm supplies, including the bulk sale of pesticides, herbicides and fertilizers;

Laboratories and related facilities for research, experimentation, testing and product development when conducted entirely within an enclosed building and does not involve the use of hazardous substances;

Landscape services;

Machinery repair shops;

Mini-storage facilities;

Printing and copy services;

Rental businesses, including equipment, vehicles and party services;

Reupholstery and furniture repair;

Saddle and equestrian store and repair;

Security services;

Sign shop;

Small equipment repair, including, but not limited to: chain saws, lawn mowers, outboard motors, hedge trimmers and power generators;

Small recycling centers (not more than five hundred (500) square feet) including mobile recycling units, nonprofit drop-off facilities and reverse vending machines;

Technology information services;

Warehouse and wholesale businesses, excluding retail sales;

Welding supply shop;

Well drilling shops;

Wood yards;

Other similar uses found consistent with the general plan and the I district pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): Ord. 00-7 § 2; prior code § 27.101)

17.60.030 Conditional uses.

The following uses require approval of a use permit as regulated by Chapter 17.168:

All uses or expansion of existing uses proposed for industrial property that is located adjacent to property zoned for residential use. “Adjacent to” shall be defined to include properties with a common property line or properties directly across a street. “Property zoned for residential use” shall be defined as that property zoned LR low density, MR medium density, or HR high density residential;

Ambulance services, including cooking and sleeping facilities for employees on duty only;

Art, dancing, photographic and music studios and schools, including retail sales as an accessory use;

Asphalt batch, cement and concrete plants;

Audio/video recording studio;

Dwelling unit in conjunction with an approved industrial use subject to the following:

1. Approval of a dwelling unit shall be conditioned to recognize the industrial nature of the area and to provide for the safety of any children who may reside in the unit,

2. The floor area of the dwelling unit shall not exceed eight hundred fifty (850) square feet,

3. One off-street parking space shall be provided,

4. The dwelling unit shall be the primary residence of the occupant, or of the caretaker or security person;

Fuel yards other than wood;

Health club and fitness centers;

Kennels;

Laboratories and related facilities for research, experimentation, testing and product development when conducted entirely within an enclosed building and involving the use of a hazardous substance;

Livestock services;

Lumber and building materials yards;

Machine, welding, sheet metal, electric motor, pump and heavy equipment repair shops;

Manufacturing, packaging and processing when conducted entirely within an enclosed building;

Mining and quarrying of nonmetallic minerals subject to the provisions of the Surface Mining and Reclamation Act of 1975 (Section 2710 et seq. of the Public Resources Code);

Mortuary and funeral homes;

Recycling centers, including large recycling centers (five hundred (500) square feet or more);

Towing services;

Truck, bus, taxi, van and limousine terminals and service centers, including truck, trailer, and recreation vehicle rental and storage;

Veterinarian hospitals and clinics;

Wineries, excluding retail sales and tasting;

Other similar uses found consistent with the general plan and the I district pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): Ord. 03-4 § 17: Ord. 00-7 § 3; prior code § 27.102)

17.60.040 Design review required.

Pursuant to Chapter 17.164 all signs, new structures or buildings, or exterior revisions of any existing structures or buildings for both permitted and conditional uses shall require design review. (Prior code § 27.103)

17.60.050 Accessory uses, buildings and structures.

The following are the accessory uses, buildings and structures permitted in the I district:

A. Signs subject to the provisions of Chapter 17.148;

B. On-site storage facilities accessory to the primary use subject to design review approval by the planning commission. On-site storage shall not be located within required parking areas. Design review will include, but not be limited to, location, length of time for the storage facility, and size of the storage facility;

C. Other uses and structures which are customarily incidental and clearly subordinate to permitted and conditional use pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): prior code § 27.104)

17.60.060 Prohibited uses.

The following uses are specifically prohibited in the I district:

A. Activities which emit dangerous radioactivity at any point;

B. Uses constituting or resulting in public or private nuisance because of emission of any smoke, dust, gas, odor, fumes, noise, vibration, radioactive or fissionable material or refuse material;

C. Incineration or reduction of garbage, offal or dead animals;

D. Refining of petroleum;

E. Rendering of animal fats and oils;

F. Smelting of metallic ores;

G. Stockyards or slaughterhouses. (Prior code § 27.105)

17.60.070 Development standards.

The following requirements shall be observed in the I district, except as otherwise provided in this title:

A. Minimum lot size: twenty thousand (20,000) square feet.

B. Minimum lot width: one hundred (100) feet.

C. Setbacks.

1. Twenty (20) foot minimum setback from any street or public right-of-way.

2. Ten (10) foot to thirty-five (35) foot setback from a railroad right-of-way, to be determined in the use permit.

3. Minimum three-foot unobstructed clearance between building and property boundaries.

D. Building Height. Building height maximum is forty-five (45) feet, except as noted below:

1. Height of buildings adjacent to residential or agricultural districts may only be as tall as their setbacks from those residential or agricultural districts.

E. Floor Area Ratio Maximum.

1. Fifty one-hundredths (0.50) for uses including less than ninety percent (90%) warehousing.

2. Sixty one-hundredths (0.60) for uses including no less than ninety percent (90%) warehousing.

F. Fencing.

1. No fence in the front setback shall exceed three feet in height; all other fencing shall not exceed eight feet in height.

2. Opaque, eight-foot tall, landscaped fence or wall required where I district development adjoins non-I district, which fence or wall need not be on the property boundary.

3. Opaque, eight-foot tall, soundproofed, landscaped wall required where I district abuts residential district.

G. Minimum of ten percent (10%) of site shall be landscaped pursuant to standards in Section 17.52.090(E) (SC district standards) and the following:

1. A minimum fifteen (15) foot landscaped buffer with street trees (generally spaced at one tree per thirty (30) feet of frontage) shall be provided adjacent to public streets.

2. Trees shall be credited for the estimated area of crown development at five years, provided:

a. Landscape plans are prepared by a licensed landscape architect or licensed landscape contractor, whose charge is to provide visual buffers between properties, screen industrial development from nonindustrial property and provide useful shade.

b. Trees are at least fifteen (15) gallon size at time of planting, and the design otherwise conforms to the standards in Section 17.52.090(E).

c. Ground cover under trees is installed and maintained in accordance with approved plans.

d. Installation and first year maintenance is performed by a licensed landscape contractor.

3. Water-conserving designs and irrigation systems shall be used.

H. Parking shall be regulated by Chapter 17.124, except that:

1. Office buildings and office floor areas shall provide one parking space per three hundred (300) square feet of office area.

2. General industrial uses shall provide at least one parking space per six hundred fifty (650) square feet of industrial area.

3. Except for wine warehouses, warehouses and warehousing space shall provide at least one parking space per one thousand (1,000) square feet of warehousing space. Wine warehouses shall provide parking spaces as set forth in Section 17.124.030(G).

4. Parking spaces may be paved with all-weather dust-free pervious materials, but travelways must be of concrete or asphalt.

5. Off-street parking may not be in front yard, but may be anywhere else provided it is not in conflict with subsection C or G of this section.

I. No loading/unloading may be conducted in a public right-of-way. There shall be at least one off-street loading space per use. Additional loading dock and truck standing requirements shall be based on proposed uses; these requirements shall be specified in each use permit. These requirements shall ensure that trucks will not block traffic or obstruct on-street parking spaces. Upon adoption of a finding by the planning commission that a business is unreasonably blocking traffic or obstructing on-street parking spaces, the planning commission may review and amend that business's use permit as needed to permit the street to function as it should.

J. Exterior lighting shall be directed or shielded so as to prevent glare onto any residential property or public roadway.

K. Trash bin shall not be visible from public right-of-way.

L. Materials storage shall be screened from public view.

M. Activities that create significant noise shall be designed and located to minimize noise effects on adjacent property.

N. Activities that generate odor, fumes, vibration, glare, dust, water or air pollution, fire or explosive hazard and visual impact shall be subject to use permit conditions that ensure that public health, safety and welfare is not compromised.

O. A rapid entry Knox Box system shall be installed.

P. Installation of approved interior fire sprinkler system.

Q. One-hour minimum fire resistant construction on all exterior walls within ten (10) feet of property boundary. Fire resistant construction of interior walls shall be determined by type of occupancy.

R. A business plan shall be filed annually with the county of Napa hazardous material section of the department of environmental management and a copy of approval shall be submitted to the city planning director. No hazardous or flammable materials shall be stored outside of the building without a proper storage container.

S. Signs shall be regulated by Chapter 17.148.

T. Low flow (water restricting) plumbing devices shall be installed.

U. Off-street parking and loading shall be provided in compliance with Chapter 17.124. Requirements pertaining to minimum height, setbacks, parking, loading, pollution, landscaping and other pertinent factors shall be as determined by the use permit granted. (Ord. 01-8 § 3 (part); prior code § 27.106)

17.60.080 Other uses, standards and requirements.

A. Wastewater Generation.

Each and every use allowed in the CB district shall be restricted such that all said uses on any single lot of record, as defined by Section 13.24.090(C) do not in the aggregate generate wastewater in excess of the following standards:

1. Six hundred (600) gallons per day, without a use permit which regulates wastewater generation;

2. Two thousand five hundred (2,500) gallons per day, upon grant of a use permit regulating wastewater generation; provided the city council approves a use permit with conditions ensuring that all reasonable water conservation measures are implemented, and finds that approval is in the best interest of the city; or

3. For all uses lawfully in effect on any lot of record on December 8, 1981, which generated in aggregate more than six hundred (600) gallons of wastewater per day, such uses may be altered, reconstructed or changed; provided, that the resultant uses on any such lot of record do not in the aggregate generate wastewater exceeding the aggregate wastewater gallonage per day for all uses existing on the lot of record on December 8, 1981.

B. Right to Farm Provision. Property owners within the district shall recognize that there exists a right to farm properties within the district and in the vicinity of the district. There is a good faith expectation that no complaints will occur regarding legal normal agricultural activities on properties in the district or in the vicinity of the district. Such activities may include day or night disbursement of chemicals, and creation of dust, noise, or fumes. (Prior code § 27.107)

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Catering establishments including retail sales of items prepared on the premises;

Commercial laundries, rug cleaners;

Contractors' offices and yards;

Crop services;

Dry cleaners;

Farm equipment sales and repair;

Feed, grain and farm supplies, including the bulk sale of pesticides, herbicides and fertilizers;

Laboratories and related facilities for research, experimentation, testing and product development when conducted entirely within an enclosed building and does not involve the use of hazardous substances;

Landscape services;

Machinery repair shops;

Mini-storage facilities;

Printing and copy services;

Rental businesses, including equipment, vehicles and party services;

Reupholstery and furniture repair;

Saddle and equestrian store and repair;

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Small recycling centers (not more than five hundred (500) square feet) including mobile recycling units, nonprofit drop-off facilities and reverse vending machines;

Technology information services;

Warehouse and wholesale businesses, excluding retail sales;

Welding supply shop;

Well drilling shops;

Wood yards;

Other similar uses found consistent with the general plan and the I district pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): Ord. 00-7 § 2; prior code § 27.101)

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Art, dancing, photographic and music studios and schools, including retail sales as an accessory use;

Asphalt batch, cement and concrete plants;

Audio/video recording studio;

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2. The floor area of the dwelling unit shall not exceed eight hundred fifty (850) square feet,

3. One off-street parking space shall be provided,

4. The dwelling unit shall be the primary residence of the occupant, or of the caretaker or security person;

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B. On-site storage facilities accessory to the primary use subject to design review approval by the planning commission. On-site storage shall not be located within required parking areas. Design review will include, but not be limited to, location, length of time for the storage facility, and size of the storage facility;

C. Other uses and structures which are customarily incidental and clearly subordinate to permitted and conditional use pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): prior code § 27.104)

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B. Uses constituting or resulting in public or private nuisance because of emission of any smoke, dust, gas, odor, fumes, noise, vibration, radioactive or fissionable material or refuse material;

C. Incineration or reduction of garbage, offal or dead animals;

D. Refining of petroleum;

E. Rendering of animal fats and oils;

F. Smelting of metallic ores;

G. Stockyards or slaughterhouses. (Prior code § 27.105)

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B. Minimum lot width: one hundred (100) feet.

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1. Twenty (20) foot minimum setback from any street or public right-of-way.

2. Ten (10) foot to thirty-five (35) foot setback from a railroad right-of-way, to be determined in the use permit.

3. Minimum three-foot unobstructed clearance between building and property boundaries.

D. Building Height. Building height maximum is forty-five (45) feet, except as noted below:

1. Height of buildings adjacent to residential or agricultural districts may only be as tall as their setbacks from those residential or agricultural districts.

E. Floor Area Ratio Maximum.

1. Fifty one-hundredths (0.50) for uses including less than ninety percent (90%) warehousing.

2. Sixty one-hundredths (0.60) for uses including no less than ninety percent (90%) warehousing.

F. Fencing.

1. No fence in the front setback shall exceed three feet in height; all other fencing shall not exceed eight feet in height.

2. Opaque, eight-foot tall, landscaped fence or wall required where I district development adjoins non-I district, which fence or wall need not be on the property boundary.

3. Opaque, eight-foot tall, soundproofed, landscaped wall required where I district abuts residential district.

G. Minimum of ten percent (10%) of site shall be landscaped pursuant to standards in Section 17.52.090(E) (SC district standards) and the following:

1. A minimum fifteen (15) foot landscaped buffer with street trees (generally spaced at one tree per thirty (30) feet of frontage) shall be provided adjacent to public streets.

2. Trees shall be credited for the estimated area of crown development at five years, provided:

a. Landscape plans are prepared by a licensed landscape architect or licensed landscape contractor, whose charge is to provide visual buffers between properties, screen industrial development from nonindustrial property and provide useful shade.

b. Trees are at least fifteen (15) gallon size at time of planting, and the design otherwise conforms to the standards in Section 17.52.090(E).

c. Ground cover under trees is installed and maintained in accordance with approved plans.

d. Installation and first year maintenance is performed by a licensed landscape contractor.

3. Water-conserving designs and irrigation systems shall be used.

H. Parking shall be regulated by Chapter 17.124, except that:

1. Office buildings and office floor areas shall provide one parking space per three hundred (300) square feet of office area.

2. General industrial uses shall provide at least one parking space per six hundred fifty (650) square feet of industrial area.

3. Except for wine warehouses, warehouses and warehousing space shall provide at least one parking space per one thousand (1,000) square feet of warehousing space. Wine warehouses shall provide parking spaces as set forth in Section 17.124.030(G).

4. Parking spaces may be paved with all-weather dust-free pervious materials, but travelways must be of concrete or asphalt.

5. Off-street parking may not be in front yard, but may be anywhere else provided it is not in conflict with subsection C or G of this section.

I. No loading/unloading may be conducted in a public right-of-way. There shall be at least one off-street loading space per use. Additional loading dock and truck standing requirements shall be based on proposed uses; these requirements shall be specified in each use permit. These requirements shall ensure that trucks will not block traffic or obstruct on-street parking spaces. Upon adoption of a finding by the planning commission that a business is unreasonably blocking traffic or obstructing on-street parking spaces, the planning commission may review and amend that business's use permit as needed to permit the street to function as it should.

J. Exterior lighting shall be directed or shielded so as to prevent glare onto any residential property or public roadway.

K. Trash bin shall not be visible from public right-of-way.

L. Materials storage shall be screened from public view.

M. Activities that create significant noise shall be designed and located to minimize noise effects on adjacent property.

N. Activities that generate odor, fumes, vibration, glare, dust, water or air pollution, fire or explosive hazard and visual impact shall be subject to use permit conditions that ensure that public health, safety and welfare is not compromised.

O. A rapid entry Knox Box system shall be installed.

P. Installation of approved interior fire sprinkler system.

Q. One-hour minimum fire resistant construction on all exterior walls within ten (10) feet of property boundary. Fire resistant construction of interior walls shall be determined by type of occupancy.

R. A business plan shall be filed annually with the county of Napa hazardous material section of the department of environmental management and a copy of approval shall be submitted to the city planning director. No hazardous or flammable materials shall be stored outside of the building without a proper storage container.

S. Signs shall be regulated by Chapter 17.148.

T. Low flow (water restricting) plumbing devices shall be installed.

U. Off-street parking and loading shall be provided in compliance with Chapter 17.124. Requirements pertaining to minimum height, setbacks, parking, loading, pollution, landscaping and other pertinent factors shall be as determined by the use permit granted. (Ord. 01-8 § 3 (part); prior code § 27.106)

17.60.080 Other uses, standards and requirements.

A. Wastewater Generation.

Each and every use allowed in the CB district shall be restricted such that all said uses on any single lot of record, as defined by Section 13.24.090(C) do not in the aggregate generate wastewater in excess of the following standards:

1. Six hundred (600) gallons per day, without a use permit which regulates wastewater generation;

2. Two thousand five hundred (2,500) gallons per day, upon grant of a use permit regulating wastewater generation; provided the city council approves a use permit with conditions ensuring that all reasonable water conservation measures are implemented, and finds that approval is in the best interest of the city; or

3. For all uses lawfully in effect on any lot of record on December 8, 1981, which generated in aggregate more than six hundred (600) gallons of wastewater per day, such uses may be altered, reconstructed or changed; provided, that the resultant uses on any such lot of record do not in the aggregate generate wastewater exceeding the aggregate wastewater gallonage per day for all uses existing on the lot of record on December 8, 1981.

B. Right to Farm Provision. Property owners within the district shall recognize that there exists a right to farm properties within the district and in the vicinity of the district. There is a good faith expectation that no complaints will occur regarding legal normal agricultural activities on properties in the district or in the vicinity of the district. Such activities may include day or night disbursement of chemicals, and creation of dust, noise, or fumes. (Prior code § 27.107)

Chapter 17.60
INDUSTRIAL (I) DISTRICT

Sections:

17.60.010 Purpose.
17.60.020 Permitted uses.
17.60.030 Conditional uses.
17.60.040 Design review required.
17.60.050 Accessory uses, buildings and structures.
17.60.060 Prohibited uses.
17.60.070 Development standards.
17.60.080 Other uses, standards and requirements.

17.60.010 Purpose.

The *industrial* district (I) designation provides for *industrial* parks, warehouses, light manufacturing, auto and farm-related equipment sales and repairs, viticulture and winery support services and similar and compatible uses. (Prior code § 27.100)

17.60.020 Permitted uses.

The following uses are permitted within the district, except that new uses or expansion of existing uses proposed for *industrial* property that is located adjacent to property zoned for residential use shall require a use permit, as defined in Section 17.60.030.

Building material display rooms;

Carpentry, cabinet and sign shops;

Catering establishments including retail sales of items prepared on the premises;

Commercial laundries, rug cleaners;

Contractors' offices and yards;

Crop services;

Dry cleaners;

Farm equipment sales and repair;

Feed, grain and farm supplies, including the bulk sale of pesticides, herbicides and fertilizers;

Laboratories and related facilities for research, experimentation, testing and product development when conducted entirely within an enclosed building and does not involve the use of hazardous substances;

Landscape services;

Machinery repair shops;

Mini-storage facilities;

Printing and copy services;

Rental businesses, including equipment, vehicles and party services;

Reupholstery and furniture repair;

Saddle and equestrian store and repair;

Security services;

Sign shop;

Small equipment repair, including, but not limited to: chain saws, lawn mowers, outboard motors, hedge trimmers and power generators;

Small recycling centers (not more than five hundred (500) square feet) including mobile recycling units, nonprofit drop-off facilities and reverse vending machines;

Technology information services;

Warehouse and wholesale businesses, excluding retail sales;

Welding supply shop;

Well drilling shops;

Wood yards;

Other similar uses found consistent with the general plan and the I district pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): Ord. 00-7 § 2; prior code § 27.101)

17.60.030 Conditional uses.
The following uses require approval of a use permit as regulated by Chapter 17.168:

All uses or expansion of existing uses proposed for *industrial* property that is located adjacent to property zoned for residential use. “Adjacent to” shall be defined to include properties with a common property line or properties directly across a street. “Property zoned for residential use” shall be defined as that property zoned LR low density, MR medium density, or HR high density residential;

Ambulance services, including cooking and sleeping facilities for employees on duty only;

Art, dancing, photographic and music studios and schools, including retail sales as an accessory use;

Asphalt batch, cement and concrete plants;

Audio/video recording studio;

Dwelling unit in conjunction with an approved *industrial* use subject to the following:

1. Approval of a dwelling unit shall be conditioned to recognize the *industrial* nature of the area and to provide for the safety of any children who may reside in the unit,

2. The floor area of the dwelling unit shall not exceed eight hundred fifty (850) square feet,

3. One off-street parking space shall be provided,

4. The dwelling unit shall be the primary residence of the occupant, or of the caretaker or security person;

Fuel yards other than wood;

Health club and fitness centers;

Kennels;

Laboratories and related facilities for research, experimentation, testing and product development when conducted entirely within an enclosed building and involving the use of a hazardous substance;

Livestock services;

Lumber and building materials yards;

Machine, welding, sheet metal, electric motor, pump and heavy equipment repair shops;

Manufacturing, packaging and processing when conducted entirely within an enclosed building;

Mining and quarrying of nonmetallic minerals subject to the provisions of the Surface Mining and Reclamation Act of 1975 (Section 2710 et seq. of the Public Resources Code);

Mortuary and funeral homes;

Recycling centers, including large recycling centers (five hundred (500) square feet or more);

Towing services;

Truck, bus, taxi, van and limousine terminals and service centers, including truck, trailer, and recreation vehicle rental and storage;

Veterinarian hospitals and clinics;

Wineries, excluding retail sales and tasting;

Other similar uses found consistent with the general plan and the I district pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): Ord. 03-4 § 17: Ord. 00-7 § 3; prior code § 27.102)

17.60.040 Design review required.
Pursuant to Chapter 17.164 all signs, new structures or buildings, or exterior revisions of any existing structures or buildings for both permitted and conditional uses shall require design review. (Prior code § 27.103)

17.60.050 Accessory uses, buildings and structures.
The following are the accessory uses, buildings and structures permitted in the I district:

A. Signs subject to the provisions of Chapter 17.148;

B. On-site storage facilities accessory to the primary use subject to design review approval by the planning commission. On-site storage shall not be located within required parking areas. Design review will include, but not be limited to, location, length of time for the storage facility, and size of the storage facility;

C. Other uses and structures which are customarily incidental and clearly subordinate to permitted and conditional use pursuant to Chapter 17.08. (Ord. 07-1 § 2 (part): prior code § 27.104)

17.60.060 Prohibited uses.
The following uses are specifically prohibited in the I district:

A. Activities which emit dangerous radioactivity at any point;

B. Uses constituting or resulting in public or private nuisance because of emission of any smoke, dust, gas, odor, fumes, noise, vibration, radioactive or fissionable material or refuse material;

C. Incineration or reduction of garbage, offal or dead animals;

D. Refining of petroleum;

E. Rendering of animal fats and oils;

F. Smelting of metallic ores;

G. Stockyards or slaughterhouses. (Prior code § 27.105)

17.60.070 Development standards.

The following requirements shall be observed in the I district, except as otherwise provided in this title:

A. Minimum lot size: twenty thousand (20,000) square feet.

B. Minimum lot width: one hundred (100) feet.

C. Setbacks.

1. Twenty (20) foot minimum setback from any street or public right-of-way.

2. Ten (10) foot to thirty-five (35) foot setback from a railroad right-of-way, to be determined in the use permit.

3. Minimum three-foot unobstructed clearance between building and property boundaries.

D. Building Height. Building height maximum is forty-five (45) feet, except as noted below:

1. Height of buildings adjacent to residential or agricultural districts may only be as tall as their setbacks from those residential or agricultural districts.

E. Floor Area Ratio Maximum.

1. Fifty one-hundredths (0.50) for uses including less than ninety percent (90%) warehousing.

2. Sixty one-hundredths (0.60) for uses including no less than ninety percent (90%) warehousing.

F. Fencing.

1. No fence in the front setback shall exceed three feet in height; all other fencing shall not exceed eight feet in height.

2. Opaque, eight-foot tall, landscaped fence or wall required where I district development adjoins non-I district, which fence or wall need not be on the property boundary.

3. Opaque, eight-foot tall, soundproofed, landscaped wall required where I district abuts residential district.

G. Minimum of ten percent (10%) of site shall be landscaped pursuant to standards in Section 17.52.090(E) (SC district standards) and the following:

1. A minimum fifteen (15) foot landscaped buffer with street trees (generally spaced at one tree per thirty (30) feet of frontage) shall be provided adjacent to public streets.

2. Trees shall be credited for the estimated area of crown development at five years, provided:

a. Landscape plans are prepared by a licensed landscape architect or licensed landscape contractor, whose charge is to provide visual buffers between properties, screen *industrial* development from nonindustrial property and provide useful shade.

b. Trees are at least fifteen (15) gallon size at time of planting, and the design otherwise conforms to the standards in Section 17.52.090(E).

c. Ground cover under trees is installed and maintained in accordance with approved plans.

d. Installation and first year maintenance is performed by a licensed landscape contractor.

3. Water-conserving designs and irrigation systems shall be used.

H. Parking shall be regulated by Chapter 17.124, except that:

1. Office buildings and office floor areas shall provide one parking space per three hundred (300) square feet of office area.

2. General *industrial* uses shall provide at least one parking space per six hundred fifty (650) square feet of *industrial* area.

3. Except for wine warehouses, warehouses and warehousing space shall provide at least one parking space per one thousand (1,000) square feet of warehousing space. Wine warehouses shall provide parking spaces as set forth in Section 17.124.030(G).

4. Parking spaces may be paved with all-weather dust-free pervious materials, but travelways must be of concrete or asphalt.

5. Off-street parking may not be in front yard, but may be anywhere else provided it is not in conflict with subsection C or G of this section.

I. No loading/unloading may be conducted in a public right-of-way. There shall be at least one off-street loading space per use. Additional loading dock and truck standing requirements shall be based on proposed uses; these requirements shall be specified in each use permit. These requirements shall ensure that trucks will not block traffic or obstruct on-street parking spaces. Upon adoption of a finding by the planning commission that a business is unreasonably blocking traffic or obstructing on-street parking spaces, the planning commission may review and amend that business's use permit as needed to permit the street to function as it should.

J. Exterior lighting shall be directed or shielded so as to prevent glare onto any residential property or public roadway.

K. Trash bin shall not be visible from public right-of-way.

L. Materials storage shall be screened from public view.

M. Activities that create significant noise shall be designed and located to minimize noise effects on adjacent property.

N. Activities that generate odor, fumes, vibration, glare, dust, water or air pollution, fire or explosive hazard and visual impact shall be subject to use permit conditions that ensure that public health, safety and welfare is not compromised.

O. A rapid entry Knox Box system shall be installed.

P. Installation of approved interior fire sprinkler system.

Q. One-hour minimum fire resistant construction on all exterior walls within ten (10) feet of property boundary. Fire resistant construction of interior walls shall be determined by type of occupancy.

R. A business plan shall be filed annually with the county of Napa hazardous material section of the department of environmental management and a copy of approval shall be submitted to the city planning director. No hazardous or flammable materials shall be stored outside of the building without a proper storage container.

S. Signs shall be regulated by Chapter 17.148.

T. Low flow (water restricting) plumbing devices shall be installed.

U. Off-street parking and loading shall be provided in compliance with Chapter 17.124. Requirements pertaining to minimum height, setbacks, parking, loading, pollution, landscaping and other pertinent factors shall be as determined by the use permit granted. (Ord. 01-8 § 3 (part); prior code § 27.106)

17.60.080 Other uses, standards and requirements.

A. Wastewater Generation.

Each and every use allowed in the CB district shall be restricted such that all said uses on any single lot of record, as defined by Section 13.24.090(C) do not in the aggregate generate wastewater in excess of the following standards:

1. Six hundred (600) gallons per day, without a use permit which regulates wastewater generation;

2. Two thousand five hundred (2,500) gallons per day, upon grant of a use permit regulating wastewater generation; provided the city council approves a use permit with conditions ensuring that all reasonable water conservation measures are implemented, and finds that approval is in the best interest of the city; or

3. For all uses lawfully in effect on any lot of record on December 8, 1981, which generated in aggregate more than six hundred (600) gallons of wastewater per day, such uses may be altered, reconstructed or changed; provided, that the resultant uses on any such lot of record do not in the aggregate generate wastewater exceeding the aggregate wastewater gallonage per day for all uses existing on the lot of record on December 8, 1981.

B. Right to Farm Provision. Property owners within the district shall recognize that there exists a right to farm properties within the district and in the vicinity of the district. There is a good faith expectation that no complaints will occur regarding legal normal agricultural activities on properties in the district or in the vicinity of the district. Such activities may include day or night disbursement of chemicals, and creation of dust, noise, or fumes. (Prior code § 27.107)

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Chapter 17.140
NONCONFORMING USES, BUILDINGS, STRUCTURES, LOTS AND SIGNS

Sections:

17.140.010 Purpose.
17.140.020 Nonconforming uses.
17.140.030 Nonconforming buildings or structures.
17.140.040 Nonconforming lots.
17.140.050 Illegal nonconforming uses or structures as public nuisance.
17.140.060 Signs.

17.140.010 Purpose.

Legally established existing uses, structures, lots and signs which do not conform to the regulations of the zoning district in which they are located are nonconforming. Nonconforming uses, structures, lots and signs shall be subject to these specific regulations in addition to general regulations contained in the zoning ordinance in order to permit the continued operation of such uses, structures, lots and signs while providing for their gradual elimination and/or compliance with the policies of the general plan and zoning ordinance. (Prior code § 27.300)

17.140.020 Nonconforming uses.

A nonconforming use is a legally established use of land which is not permitted in the zoning district in which it is located, or a use which is permitted by use permit but for which no use permit has been obtained, because the use was established prior to the application of the existing district due to rezoning, annexation or change in the regulations of the zoning ordinance. Legally established nonconforming uses shall be governed by the following regulations:

A. Nonconforming uses may be continued indefinitely, subject to the provisions of this chapter.

B. No nonconforming use shall be permitted to expand its operation or enlarge its floor area.

C. A legally established residential use which exceeds the density permitted by the zoning district and/or general plan land use designation in which it is located is a nonconforming use, and the density may not be increased, except as may be permitted as a density bonus pursuant to Chapter 17.144. However, buildings or structures on the lot on which such nonconforming residential use is located may be expanded, enlarged or reconstructed upon the approval of a use permit by the planning commission pursuant to Chapter 17.168.

D. A nonconforming use may not be changed to another nonconforming use of the same or greater intensity. A nonconforming use may be changed to another nonconforming use of the lesser intensity than the previous nonconforming use upon the approval of a use permit by the planning commission pursuant to the provisions of Chapter 17.168. The planning commission must make the following findings to approve such a use permit:

1. The proposed nonconforming use is of lesser intensity than the previous nonconforming use (e.g., fewer employees, reduced *storage* capacity, reduced demand on public facilities, reduced traffic impacts, less energy consumption or fewer hours of operation); and

2. The proposed nonconforming use will not be detrimental to any existing or potential permitted use in the area in which the nonconforming use is located.

These findings shall be in addition to those required for the approval of use permits contained in Chapter 17.168. If a nonconforming use is replaced by a use of lesser intensity, the occupancy thereafter may not revert to a use of greater intensity. In granting a use permit to allow a nonconforming use to be replaced with another nonconforming use of lesser intensity, the planning commission shall establish an amortization schedule for the nonconforming use, by setting a date after which the nonconforming use must be discontinued or replaced with a conforming use.

E. No nonconforming use may be resumed, reestablished, reopened or replaced by any other nonconforming use after it has been abandoned except as provided in subsections F through J of this section. Any subsequent use of the land shall be in conformity with the provisions of the zoning ordinance. Abandonment shall mean any giving up, closing, surrender, interruption, termination or discontinuance of the nonconforming use for a period of sixty (60) continuous days, regardless of intent to surrender the nonconforming use. Harold Smith “abandoned” their mining operations (which included rock crushing operations) of sulphur creek in late 1990’s. They have never filed for the required use permit to resume rock crushing after abandonment of previous permit.

F. When a nonconforming use which has been operating in conformance with a previously approved use permit is abandoned, the same use which previously existed may be resumed, reestablished, or reopened within a six month time period from the date of abandonment in accordance with the following criteria:

1. Written notice of the date of reestablishment shall be given to the planning director prior to reestablishment of the use.

2. A city business license shall be obtained.

3. All permits/approvals from any agency regulating the nonconforming use shall be obtained.

4. A fictitious business name shall be filed with Napa County if required by state regulations.

5. All required information shall be filed with the State Board of Equalization.

6. If a building permit is requested to remodel the existing building, the use permit remains vested, provided the building permit has been issued, construction consistent with the building permit has commenced, and construction is actively pursued toward completion prior to the six-month time period defining abandonment.

When it has been determined that the use has been resumed, reestablished, or reopened consistent with this criteria, the use is deemed vested.

G. When a nonconforming use which requires a use permit within the zoning district and which has not been granted a use permit is abandoned the use may not be reestablished except upon approval of a use permit as provided in Chapter 17.168, or submittal of a complete use permit application within the sixty (60) day period specified by subsection E of this section. If the operation of this type of nonconforming use is substantially changed, the new use must either be a permitted use in the district or a use permit must first be approved by the planning commission to allow the change in the operation of the same type of business previously established. Change in the operation of the business shall include, but not be limited to expansion of floor area, substantial modification of the type of business, change in type of merchandise which results in a different type of business, change in hours of operation which results in a different type of business (i.e., restaurant use to nightclub use) or changes to the business which will result in increased traffic, water use, or wastewater generation impacts.

H. When a nonconforming use which is no longer permitted in the district and which has not been granted a use permit is abandoned the use may not be reestablished except upon approval of a use permit as provided in subsection J of this section. If the operation of a legally established nonconforming use is substantially changed, the new use must either be a permitted use in the district or the planning commission must first review the change in operation to determine that the change in operation does not increase the degree of nonconformity. If the planning commission determines that the change in operation substantially increases the degree of nonconformity the change in use is not authorized. Change in the operation of the business shall include, but not be limited to expansion of floor area, substantial modification of the type of business, change in type of merchandise (one type of business to another type of business), change in hours of operation which results in a different type of business (i.e., restaurant use to nightclub use) or changes to the business which will result in increased traffic, water use, or wastewater generation impacts.

I. Notwithstanding the provisions in subsections E through H and J of this section the period of time in which a legally established nonconforming use may be reestablished may be extended for one year upon

approval of the planning director for uses which have been closed because of seismic retrofit construction authorized by a city building permit.

J. Notwithstanding the provisions in subsections E through I of this section, a nonconforming use of a building or structure which has been abandoned and the use is no longer permitted in the district may be reestablished after abandonment upon the approval of a use permit by the planning commission pursuant to the provisions of Chapter 17.168. The planning commission must make the following findings to approve such a use permit:

1. The building or structure was specifically designed or modified for a nonconforming use;

2. The structural alterations necessary to bring the building or structure into conformance with the standards of the zoning ordinance are estimated by the chief building inspector to cost more than fifty (50) percent of the current market value of building or structure; and

3. The proposed reestablishment of a nonconforming use will not be detrimental to any existing or potential permitted use in the area in which the nonconforming use is located. Prohibited Use in I district: B. Uses constituting or resulting in public or private nuisance because of emission of any smoke, dust, gas, odor, fumes, noise, vibration, radioactive or fissionable material or refuse material;

These findings shall be in addition to those required for the approval of use permits contained in Chapter 17.168. (Prior code § 27.301)

17.140.030 Nonconforming buildings or structures.

A nonconforming building, structure or other physical feature is a legally established building, structure or other physical feature which does not meet the standards of the zoning district in which it is located. It can also be a building, structure or other physical feature for which a use permit, variance or other similar permit is required but for which no such permit has been obtained because the building, structure or other physical feature was established prior to the application of the existing zoning district due to rezoning, annexation or change in the regulations of the zoning ordinance. Legally established nonconforming buildings, structures and physical features shall be governed by the following regulations:

A. Nonconforming buildings, structures or other physical features may be continued indefinitely subject to the provisions of this chapter.

B. A nonconforming building, structure or other physical feature shall not be reconstructed, except as provided for in subsection D of this section, expanded, or enlarged unless the new work will be in conformance with the regulations and standards of the zoning district in which it is located and the provisions of the zoning ordinance.

C. A nonconforming building, structure or physical feature may be remodeled, rehabilitated, or structurally altered if the new work does not increase the degree of nonconformity.

D. A nonconforming building, structure or physical feature damaged or destroyed by any means except demolition or intentional removal, may be reconstructed to its original condition if the chief building inspector determines that the cost of reconstruction does not exceed fifty percent (50%) of its market value as determined by the county assessor on the last equalized assessment roll at the time of its destruction or damage. Where the chief building inspector determines that the costs of reconstruction exceed fifty percent (50%) of its market value as determined by the county assessor on the last equalized assessment roll at the time of its destruction or damage, a nonconforming building, structure or physical feature may be reconstructed to its original or other nonconforming condition only upon the approval of a use permit by the planning commission pursuant to the provisions of Chapter 17.168 applied for within one year of damage or destruction. The planning commission may require as a condition of approval that the building is thereafter devoted to a conforming use. The planning commission must make the following findings to approve such a use permit:

The proposed reconstruction of a nonconforming building, structure or physical feature will not be detrimental to any existing or potential permitted use, building or structure in the area in which the nonconforming use is located.

This finding shall be in addition to those required for the approval of use permits contained in Chapter 17.168. (Prior code § 27.302)

17.140.040 Nonconforming lots.

A nonconforming lot is a legally established lot which does not conform to the regulations regarding area, width, frontage or other such standard for the zoning district in which it is located because of rezoning, annexation or change in the regulations of the zoning ordinance, subdivision ordinance or Subdivision Map Act. Legally created nonconforming lots shall be governed by the following regulations:

A. A nonconforming lot shall not be changed in any way that would increase the degree of nonconformity unless there is a corresponding decrease in the degree of nonconformity of an adjoining lot and no new lot(s) or additional density permitted will result.

B. Any conforming use or conforming building, structure or other physical feature may be established on any nonconforming lot provided the use, building, structure or other physical feature conforms to the standards and regulations of the zoning district in which it is located and the provisions of this title.

C. A nonconforming lot to be used for residential purposes shall be subject to the density requirements of the zoning district and general plan designation in which it is located. However, one single-family dwelling and customary accessory buildings may be permitted on any nonconforming lot in any zoning district in which a single-family dwelling is permitted, provided the single-family dwelling and accessory buildings shall conform to the design standards and regulations of the zoning district in which they are located and the provisions of this title. (Prior code § 27.303)

17.140.050 Illegal nonconforming uses or structures as public nuisance.

Any building or structure set up, erected, built or moved and any use of property contrary to the provisions of this title shall be and the same is hereby declared to be unlawful and a public nuisance. Action shall be immediately commenced for abatement, removal and enjoinment in the manner provided by law; other steps shall be taken to apply to such court or courts as may have jurisdiction to grant such relief as will abate and remove such building or structure and restrain and enjoin any person from setting up, erecting, building or moving any such building or using any property contrary to the provisions of this title. The remedies provided for herein shall be cumulative and not exclusive. (Prior code § 27.304) Rock piles and crushing activity

17.140.060 Signs.

The following provisions shall apply to all advertising billboards, identification signs, on-site commercial or *industrial* advertising signs, public or quasi-public directional signs, shopping center identification signs, shopping center directory signs, temporary real estate signs and temporary portable advertising signs in public parks, schools and playgrounds:

A. A lawful sign or advertising billboard existing at the time of the passage of this title, although such a sign does not conform to the provisions hereof, may be continued; provided, however, that nonconforming signs may not be continued for longer than five years after the effective date of this title, or seven years from date of erection, whichever is longer. If any nonconforming sign is abandoned, is destroyed to the extent of more than one-half of the value thereof as determined by the city building inspector, or its use is discontinued for a period of six months or more, such sign shall be removed by the owner of the property on which the sign is located.

B. No lawful sign or advertising billboard existing at the time of the passage of this title shall be enlarged, altered, reconstructed or replaced unless the enlarged, altered, reconstructed sign or replacement sign conforms to all the provisions of this title; provided, however, reasonable repair and maintenance shall be permitted.

C. The foregoing provisions shall also apply to nonconforming signs in districts hereafter changed or established and any time limit for the suspension of a nonconforming sign shall date from the date of the enactment of this title or any amendment of district boundaries which may make the signs nonconforming.

D. It shall be the duty of the owner of any nonconforming sign and the duty of the owner of any premises upon which a nonconforming sign is located, to remove the same pursuant to the provisions of this title or to bring same into conformance with the provisions of this title. If such owners fail to perform such duty, the city council shall direct the city building inspector to notify such owners in writing, registered mail, postage prepaid, to their last known addresses, to cause such removal or conformance within thirty (30) days after mailing of such notice. The owners shall have the right, upon owner's request, to a public hearing at any city council meeting following giving of the notice and prior to the expiration of the thirty (30) day period on the issue of whether or not the owner is obligated hereunder to perform such duty. If such owners fail to perform such duty within the thirty (30) day period, the city council, in addition

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Appendix B: Summary of Scoping Comments

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DYETT & BHATIA
Urban and Regional Planners

MEMORANDUM

To:	Noah Housh, Planning and Community Improvement Director, City of St. Helena
From:	Katharine Pan, Associate / Emily Alvarez, Planner
Re:	City of St Helena General Plan Update EIR – Summary of Scoping Comments
Date:	May 10, 2018

This memo summarizes comments received in response to the Notice of Preparation (NOP) for the St Helena General Plan Update Environmental Impact Report (EIR). The NOP was released on April 1, 2018, kicking off a 30-day scoping period which ran until May 1, 2018. During that time, the City received two written comments, including one from the California Department of Transportation (Caltrans) and one from a community member. Additionally, oral comments were heard at a public scoping meeting before the Planning Commission on April 17, 2018. The comments are summarized below, with agency comments reported separately from community comments. Comments are organized thematically.

SUMMARY OF COMMUNITY COMMENTS

Traffic Congestion

- Significant queuing occurs at intersections along Highway 29, some of which currently function at Level of Service (LOS) F during peak times. Analysis of service along this route should take into account the fact that traffic is not moving through intersections at peak times due to congestion, which may result in inaccurate LOS measurements. The traffic analysis methodology should consider this. The traffic model used for the analysis should be carefully reviewed to ensure accuracy.
- As Highway 29 is a State Route, some of the traffic on Highway 29 is through-traffic. The EIR should consider the effects of visitor traffic on local circulation.
- Certain roadway segments have, historically, been problematic - for example, the Adams Street corridor, particularly at the intersections of Main Street and Railroad Avenue. The 1992 EIR for Safeway traffic mitigation measures included a right turn lane at Main and Adams streets that was not implemented. If available, the Safeway EIR should be referenced to the extent it provides insight into feasible measures to address potential impacts.
- Traffic congestion also has a negative impact on safety, including the impact on pedestrians, bicyclists, and the ability for emergency response vehicles to quickly access all parts of the community. These impacts related to congestion should be considered.

Roadway Safety

- Traffic impacts should be analyzed in a holistic fashion. Potential impacts to pedestrians and cyclists in addition to vehicle impacts.

755 Sansome St, Suite 400 | T 415 956 4300
San Francisco, CA 94111 | F 415 956 7315
www.dyettandbhatia.com

- Crossing at the intersection of Adams Street and Railroad Avenue is also challenging for pedestrians, especially at the PM peak. The EIR should analyze roadway safety at critical intersections like this one.

Cumulative Traffic Impacts

- During the undergrounding of utilities at the southern approach of Highway 29, the California Public Utilities Commission (CPUC) included requirements for additional traffic signals. If the General Plan update affects the Wine Train, it could once again trigger additional signalization per the CPUC. The potential traffic congestion as the result of new signals should be analyzed as part of the cumulative analysis.
- One commenter at the scoping meeting noted that the Wine Train currently functions solely as a tourist service, but that there have been discussions on expanding to passenger service and asked how this would be addressed in the EIR. Staff responded that if this were to happen, according to CEQA Guidelines, an EIR would be required, with the CPUC acting as the lead agency for the project.

Emergency Evacuation and Response

- Currently, the only crossing in St. Helena over the Napa River exists at the Pope Street Bridge. During peak times, it may not be passable by emergency services due to traffic congestion. The EIR should consider associated impacts related to emergency evacuation and response.
- Napa River flooding can block roadways and inhibit access to the hospital. The EIR should consider associated impacts related to emergency evacuation and response.
- One commenter noted that because sections of town are only accessible via Highway 29, there is concern over emergency access. The Fire Department has established a satellite station to improve its access to these neighborhoods, but the commenter asked how emergency access will be analyzed in the EIR. The consultant clarified that the EIR will examine the emergency access to these neighborhoods given existing policies and procedures and determine if additional measures are needed to adequately provide emergency response given the growth projected at build-out.

Flooding

- During heavy rains, the City storm drain outfall to Sulphur Creek can back up and cause flooding up to Tainter Street. The EIR should consider any existing deficiencies of the storm drain system in the analysis of flooding impacts.
- The EIR should assess any safety issues related to the Flood Control Project based on documentation from the Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers.

Land Use/Neighborhood Compatibility

- The EIR should analyze potential impacts resulting from increased housing density that could result from buildout of the General Plan, including neighborhood impacts related to noise, traffic, air quality and other issues.

- The potential impacts of new development and business expansion in the industrial zone located on the southeast side of St. Helena should be examined in the EIR, including potential impacts on biological resources (nearby riparian areas), air quality, noise, truck traffic, roadway safety, water quality, and hazards. Additionally, the General Plan could consider redesignating this land for uses more compatible with surrounding residences.

SUMMARY OF AGENCY COMMENTS - CALTRANS LETTER OF APRIL 30, 2018

Transportation Impact Analysis

- Caltrans advises that the transportation impact analysis be conducted using current data and methodology. As Caltrans is switching to VMT to evaluate transportation impacts, the letter suggests that the City adopt VMT thresholds.
- The letter states that the alternatives analysis should discuss buildout of potential transit improvement projects that would reduce VMT associated with visitor trips to St Helena, including future rapid-bus service in Napa Valley or expanded rail service along the Wine Train corridor.

Multimodal Planning

- Caltrans District 4 Bike Plan identifies improvements at the intersection of Pope Street and Highway 29 intended to improve bicycle safety and circulation. Additionally, the Bike Plan includes a Level of Traffic Stress (LTS) standard that indicates a high LTS along Highway 29. As such, Caltrans requests that the EIR analyze cumulative impacts affecting cyclists and pedestrians considering the Bike Plan's methodology and augmenting as necessary.
- The EIR should consider primary and secondary effects on pedestrians, bicyclists, disabled travelers, and transit users, including countermeasures and trade-offs resulting from mitigating VMT increases. Such Smart Growth approaches are consistent with MTC's Regional Transportation Plan/Sustainable Community Strategies.

General Recommendations

- Comments from Caltrans also addressed the content of the General Plan, including recommendations regarding the establishment of several policy approaches to reducing VMT. These suggestions include establishing a Priority Development Area (PDA) within the city, expanding transit and active transportation, and reducing VMT from tourism through a Transportation Demand Management (TDM) program.
- Additionally, Caltrans requested that the City estimate project-generated travel demand, estimate the cost of transit and active transportation improvements needed to support this demand, and identify potential funding sources for the needed improvements.

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Appendix C: Tribal Correspondence

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Note that for the purposes of this EIR, the numbering of the unincorporated study areas has changed from the original numbering in the project description provided in the tribal consultation letters. As described in Chapter 2.0: Project Description and shown in Figure 2.1-1, the study areas are numbered from north to south throughout the EIR. All other details regarding the study areas are unchanged.

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Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☒ **CEQA Tribal Consultation List (AB 52)** – ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☒ **General Plan (SB 18)** - ***Per Government Code § 65352.3.***

Local Action Type:

☒ **General Plan** ☐ **General Plan Element** ☐ **General Plan Amendment**

☐ **Specific Plan** ☐ **Specific Plan Amendment** ☐ **Pre-planning Outreach Activity**

Required Information

Project Title: City of St. Helena General Plan Update

Local Government/Lead Agency: City of St. Helena

Contact Person: Noah Housh

Street Address: 1480 Main Street

City: St. Helena **Zip:** 94574

Phone: (707)-968-2659 **Fax:**

Email: NHoush@cityofsthelena.org

Specific Area Subject to Proposed Action

County: Napa **City/Community:** St. Helena

Project Description:

See following page.

Additional Request

☒ **Sacred Lands File Search** - ***Required Information:***

USGS Quadrangle Name(s): St. Helena, Sonoma

Township: **Range:** **Section(s):**

C-3

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Room 100
West Sacramento, CA 95691
(916) 373-3710

May 29, 2018

Noah Housh
City of St. Helena

Sent by Email: nhoush@cityofsthelena.org
Number of Pages: 2

RE: City of St. Helena General Plan Update, St. Helena & Sonoma, Napa County

Dear Mr. Housh

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* (SLF) was completed for the area of potential project effect (APE) for the above referenced project. **Sacred sites were identified in the project area provided**. Please contact the tribes on the attached contact list directly for more information about potential sacred sites and tribal cultural resources within your APE.

The absence of site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE. Other sources of cultural resources information should be contacted regarding known and recorded sites. Please contact all of the people on the attached list. The list should provide a starting place to locate areas of potential adverse impact within the APE. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult under applicable laws.** If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: sharaya.souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168

CONFIDENTIALITY NOTICE: This communication with its contents may contain confidential and/or legally privileged information. It is solely for the use of the intended recipient(s). Unauthorized interception, review, use or disclosure is prohibited and may violate applicable laws including the Electronic Communications Privacy Act. If you are not the intended recipient, please contact the sender and destroy all copies of the communication.

Native American Heritage Commission
Native American Contacts
5/29/2018

Cortina Indian Rancheria of Wintun Indians
Charlie Wright, Chairperson
P.O. Box 1630 — Wintun / Patwin
Williams , CA 95987
(530) 473-3274 Office
(530) 473-3301 Fax

Middletown Rancheria
Jose Simon III, Chairperson
P.O. Box 1035 — Pomo
Middletown , CA 95461 — Lake Miwok
(707) 987-3670 Office
(707) 987-9091 Fax

Mishewal-Wappo Tribe of Alexander Valley
Scott Gabaldon, Chairperson
2275 Silk Road — Wappo
Windsor , CA 95492
scottg@mishewalwappotribe.com
(707) 494-9159

Yocha Dehe Wintun Nation
Anthony Roberts, Chairperson
P.O. Box 18 — Wintun (Patwin)
Brooks , CA 95606
aroberts@yochadehe-nsn.gov
(530) 796-3400
(530) 796-2143 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes for the proposed:
City of St. Helena General Plan Update, St. Helena & Sonoma, Napa County.

Native American Tribal Consultation List
Napa County
February 16, 2016

Cortina Band of Indians
Charlie Wright, Chairperson
P.O. Box 1630 — Wintun / Patwin
Williams , CA 95987
(530) 473-3274 Office

Middletown Rancheria of Pomo Indians
Jose Simon III, Chairperson
P.O. Box 1035 — Pomo
Middletown , CA 95461 — Lake Miwok
(707) 987-3670 Office

The Federated Indians of Graton Rancheria
Greg Sarris, Chairperson
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
coastmiwok@aol.com
(707) 566-2288 Office

The Federated Indians of Graton Rancheria
Gene Buvelot
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
coastmiwok@aol.com
(415) 279-4844 Cell
(707) 566-2288 ext 103

Yocha Dehe Wintun Nation
Leland Kinter, Chairperson
P.O. Box 18 — Wintun (Patwin)
Brooks , CA 95606
lkinter@yochadehe-nsn.gov
(530) 796-3400

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This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3 and 65362.4 et seq. for the proposed General Plan Update, Napa County.

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

August 9, 2018

Scott Gabaldon
Mishewal-Wappo Tribe of Alexander Valley
2275 Silk Road
Windsor, CA 95492

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Gabaldon,

The City of St. Helena, CA is currently in the process of updating its General Plan. The Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas. The City is located approximately 65 miles north of San Francisco and 77 miles west of Sacramento (a vicinity map is attached for reference).

Pursuant to SB 18, the City hereby requests that you advise us within 90 days of receipt of this letter should you have any interest in consulting on the subject action.

Please feel free to contact me at (707) 968-2659 or nhoush@cityofsthelena.org should you have any questions about the City's request.

Regards,

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

August 9, 2018

Anthony Roberts, Chairperson
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Roberts:

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August 9, 2018

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RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

Mr. Gabaldon,

This letter provides notice, pursuant to Public Resources Code §21080.3.1(d), that the City of St. Helena is in the process of updating the City of St. Helena General Plan, which is subject to the California Environmental Quality Act (CEQA) and Assembly Bill 52. The City of St. Helena recognizes the importance of preserving tribal cultural resources and respectfully invites you to consult on and participate in the review process for this project.

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- *An updated horizon year of 2040;*
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- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, Mishewal-Wappo Tribe of Alexander Valley has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If Mishewal-Wappo Tribe of Alexander Valley provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or

Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

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August 9, 2018

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Upon receipt of this notice, the Yocha Dehe Wintun Nation has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If the Yocha Dehe Wintun Nation provides the City of St. Helena with confidential information subject to

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

April 12, 2018

Charlie Wright, Chairperson
Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Wright,

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Regards,

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

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Planning Department
1480 Main Street
St. Helena, CA 94574

April 12, 2018

Greg Sarris, Chairperson
The Federated Indians of Graton Rancheria
6400 Redwood Drive, Ste 300
Rohnert Park, CA 94928

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Sarris,

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Regards,

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

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Planning Department
1480 Main Street
St. Helena, CA 94574

April 12, 2018

Gene Buvelot
The Federated Indians of Graton Rancheria
6400 Redwood Drive, Ste 300
Rohnert Park, CA 94928

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Buvelot:

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Regards,

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Planning and Community Improvement Director
City of St. Helena

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Planning Department
1480 Main Street
St. Helena, CA 94574

April 12, 2018

Jose Simon III, Chairperson
Middletown Rancheria of Pomo Indians
P.O. Box 1035
Middletown, CA 95461

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Simon,

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Noah Housh,
Planning and Community Improvement Director
City of St. Helena

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1480 Main Street
St. Helena, CA 94574

April 12, 2018

Vincent Salsedo
Mishewal Wappo Tribe of Alexander Valley
P.O. Box 1086
Santa Rosa, CA 95402

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Salsedo,

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Planning and Community Improvement Director
City of St. Helena

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Planning Department
1480 Main Street
St. Helena, CA 94574

April 12, 2018

Leland Kinter, Chairperson
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Re: SB18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County, CA.

Dear Mr. Kinter:

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City of St. Helena

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Planning Department
1480 Main Street
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April 23, 2018

Charlie Wright, Chairperson
Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

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Upon receipt of this notice, the Cortina Band of Indians has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If the Cortina Band of Indians provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or Government Code Section

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City of St. Helena

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1480 Main Street
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April 23, 2018

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- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, The Federated Indians of Graton Rancheria has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If The Federated Indians of Graton Rancheria provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or

Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

April 23, 2018

Gene Buvelot
The Federated Indians of Graton Rancheria
6400 Redwood Drive, Ste 300
Rohnert Park, CA 94928

RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

Mr. Buvelot,

This letter provides notice, pursuant to Public Resources Code §21080.3.1(d), that the City of St. Helena is in the process of updating the City of St. Helena General Plan, which is subject to the California Environmental Quality Act (CEQA) and Assembly Bill 52. The City of St. Helena recognizes the importance of preserving tribal cultural resources and respectfully invites you to consult on and participate in the review process for this project.

Project Location: The Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas, denoted as Study Areas 1, 2, and 3 on attached map.

Project Description: The General Plan update effort began in 2007, but was postponed in an effort to address outstanding concerns and comments. In 2018, the City began an effort to finalize the Draft EIR and incorporate the following refinements:

- *An updated horizon year of 2040;*
- *Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;*
- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, The Federated Indians of Graton Rancheria has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If The Federated Indians of Graton Rancheria provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or

Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

April 23, 2018

Jose Simon III, Chairperson
Middletown Rancheria of Pomo Indians
P.O. Box 1035
Middletown, CA 95461

RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

Mr. Simon,

This letter provides notice, pursuant to Public Resources Code §21080.3.1(d), that the City of St. Helena is in the process of updating the City of St. Helena General Plan, which is subject to the California Environmental Quality Act (CEQA) and Assembly Bill 52. The City of St. Helena recognizes the importance of preserving tribal cultural resources and respectfully invites you to consult on and participate in the review process for this project.

Project Location: The Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas, denoted as Study Areas 1, 2, and 3 on attached map.

Project Description: The General Plan update effort began in 2007, but was postponed in an effort to address outstanding concerns and comments. In 2018, the City began an effort to finalize the Draft EIR and incorporate the following refinements:

- *An updated horizon year of 2040;*
- *Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;*
- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, Middletown Rancheria of Pomo Indians has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If Middletown Rancheria of Pomo Indians provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or

Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

April 23, 2018

Vincent Salsedo
Mishewal Wappo Tribe of Alexander Valley
P.O. Box 1086
Santa Rosa, CA 95402

RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

Mr. Salsedo,

This letter provides notice, pursuant to Public Resources Code §21080.3.1(d), that the City of St. Helena is in the process of updating the City of St. Helena General Plan, which is subject to the California Environmental Quality Act (CEQA) and Assembly Bill 52. The City of St. Helena recognizes the importance of preserving tribal cultural resources and respectfully invites you to consult on and participate in the review process for this project.

Project Location: The Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas, denoted as Study Areas 1, 2, and 3 on attached map.

Project Description: The General Plan update effort began in 2007, but was postponed in an effort to address outstanding concerns and comments. In 2018, the City began an effort to finalize the Draft EIR and incorporate the following refinements:

- *An updated horizon year of 2040;*
- *Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;*
- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, Mishewal Wappo Tribe of Alexander Valley has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If Mishewal Wappo Tribe of Alexander Valley provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or

Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

City of St. Helena
Planning Department
1480 Main Street
St. Helena, CA 94574

April 23, 2018

Yocha Dehe Wintun Nation
Leland Kinter, Chairperson
P.O. BOX 18
Brook, CA 95606

RE: Preparation of a Draft Environmental Impact Report for the City of St. Helena General Plan Update

Mr. Kinter,

This letter provides notice, pursuant to Public Resources Code §21080.3.1(d), that the City of St. Helena is in the process of updating the City of St. Helena General Plan, which is subject to the California Environmental Quality Act (CEQA) and Assembly Bill 52. The City of St. Helena recognizes the importance of preserving tribal cultural resources and respectfully invites you to consult on and participate in the review process for this project.

Project Location: The Planning Area for the General Plan update encompasses approximately 3,594 acres including the City of St. Helena, its Sphere of Influence (SOI), and three adjacent unincorporated study areas, denoted as Study Areas 1, 2, and 3 on attached map.

Project Description: The General Plan update effort began in 2007, but was postponed in an effort to address outstanding concerns and comments. In 2018, the City began an effort to finalize the Draft EIR and incorporate the following refinements:

- *An updated horizon year of 2040;*
- *Additional policies to address State general plan requirements that have been adopted since the 2010 draft of the General Plan was completed;*
- *Text revisions associated with new State requirements; and*
- *Documentation of sensitive environmental resources and regulatory or capacity constraints in the three additional study areas outside but adjacent to the city limits in order to inform decision-makers and community members about associated issues and opportunities.*

Upon receipt of this notice, the Yocha Dehe Wintun Nation has thirty (30) days to request consultation pursuant to Public Resources Code §21083.3.1, 21083.3.2, and 21083.3. If the Yocha Dehe Wintun Nation provides the City of St. Helena with confidential information subject to Public Resources Code §21082.3(c), Government Code §6254.10, or Government Code

Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

Public Resources Code §21082.3(c), Government Code §6254.10, or Government Code Section §6254(r), we request that it be explicitly labeled and packaged to prevent inadvertent public disclosure.

If you have any questions and/or would like to request consultation, please contact me at 707-968-2659 or nhoush@sthelena.org.

Noah Housh,
Planning and Community Improvement Director
City of St. Helena

ATTACHMENT: Vicinity Map

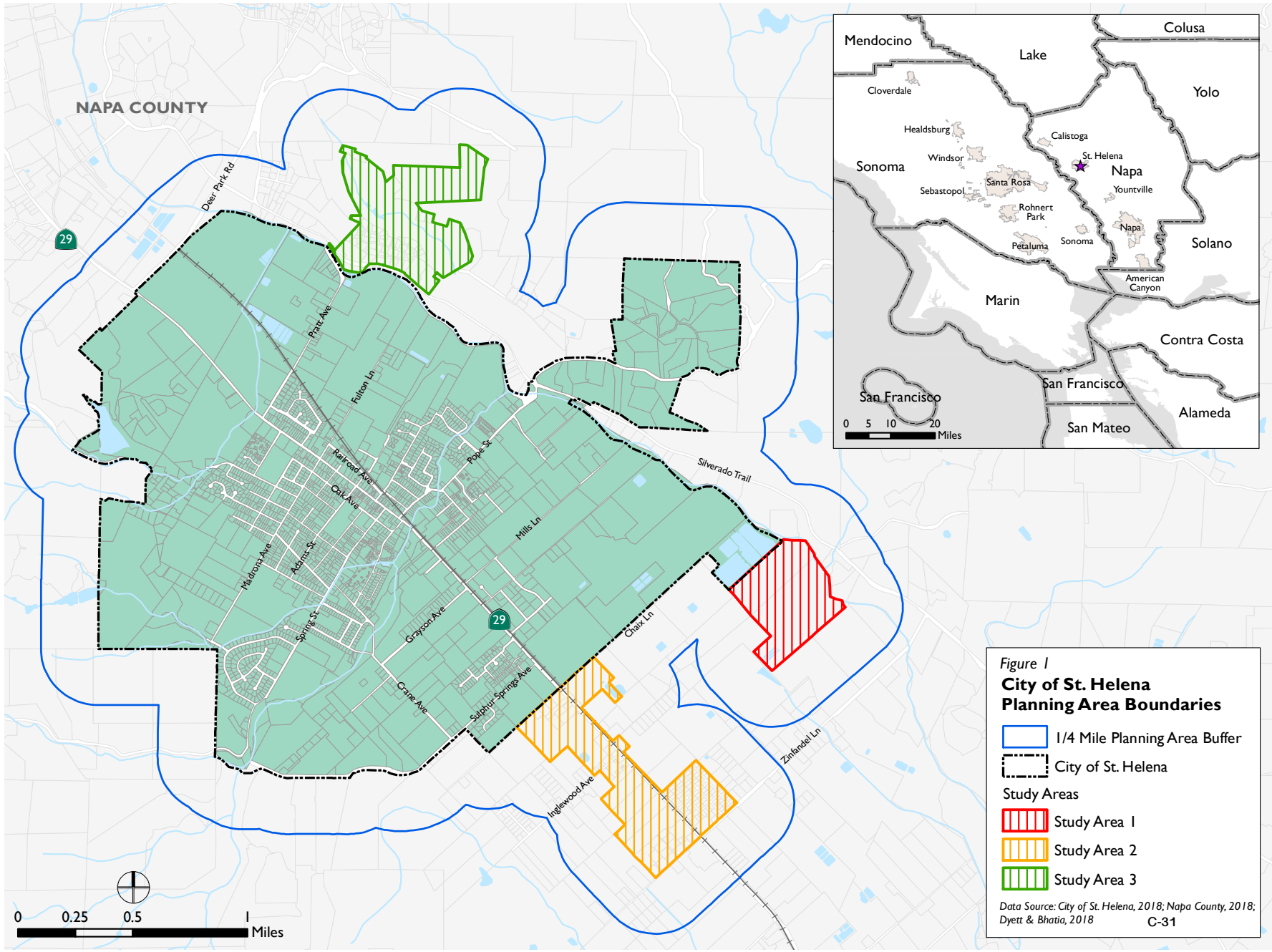

NAPA COUNTY
Deer Park Rd
Pratt Ave
Fulton Ln
Railroad Ave
Oak Ave
Pope St
Silverado Trail
Mills Ln
Madrona Ave
Adams St
Spring St
Grayson Ave
Crane Ave
Sulphur Springs Ave
Chiles Ln
Zinfandel Ln
Inglewood Ave
29
0 0.25 0.5 1 Miles
Mendocino
Lake
Colusa
Yolo
Cloverdale
Healdsburg
Calistoga
St. Helena
Windsor
Sonoma
Napa
Sebastopol
Santa Rosa
Yountville
Rohnert Park
Petaluma
Solano
American Canyon
Marin
Contra Costa
San Francisco
Alameda
San Mateo
0 5 10 20 Miles
Figure 1
City of St. Helena
Planning Area Boundaries
1/4 Mile Planning Area Buffer
City of St. Helena
Study Areas
Study Area 1
Study Area 2
Study Area 3
Data Source: City of St. Helena, 2018; Napa County, 2018; Dyett & Bhatia, 2018
C-31

Figure 2

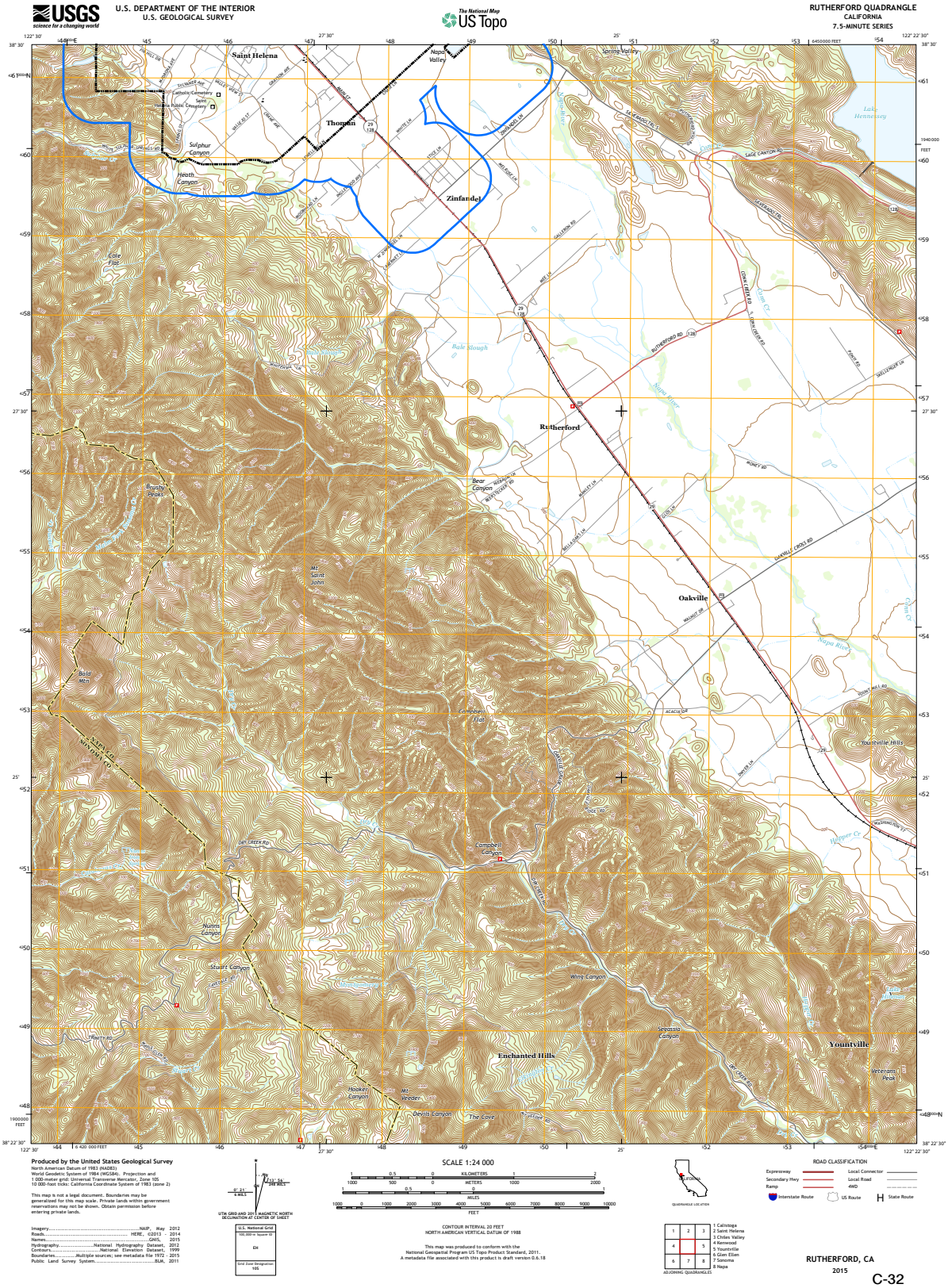
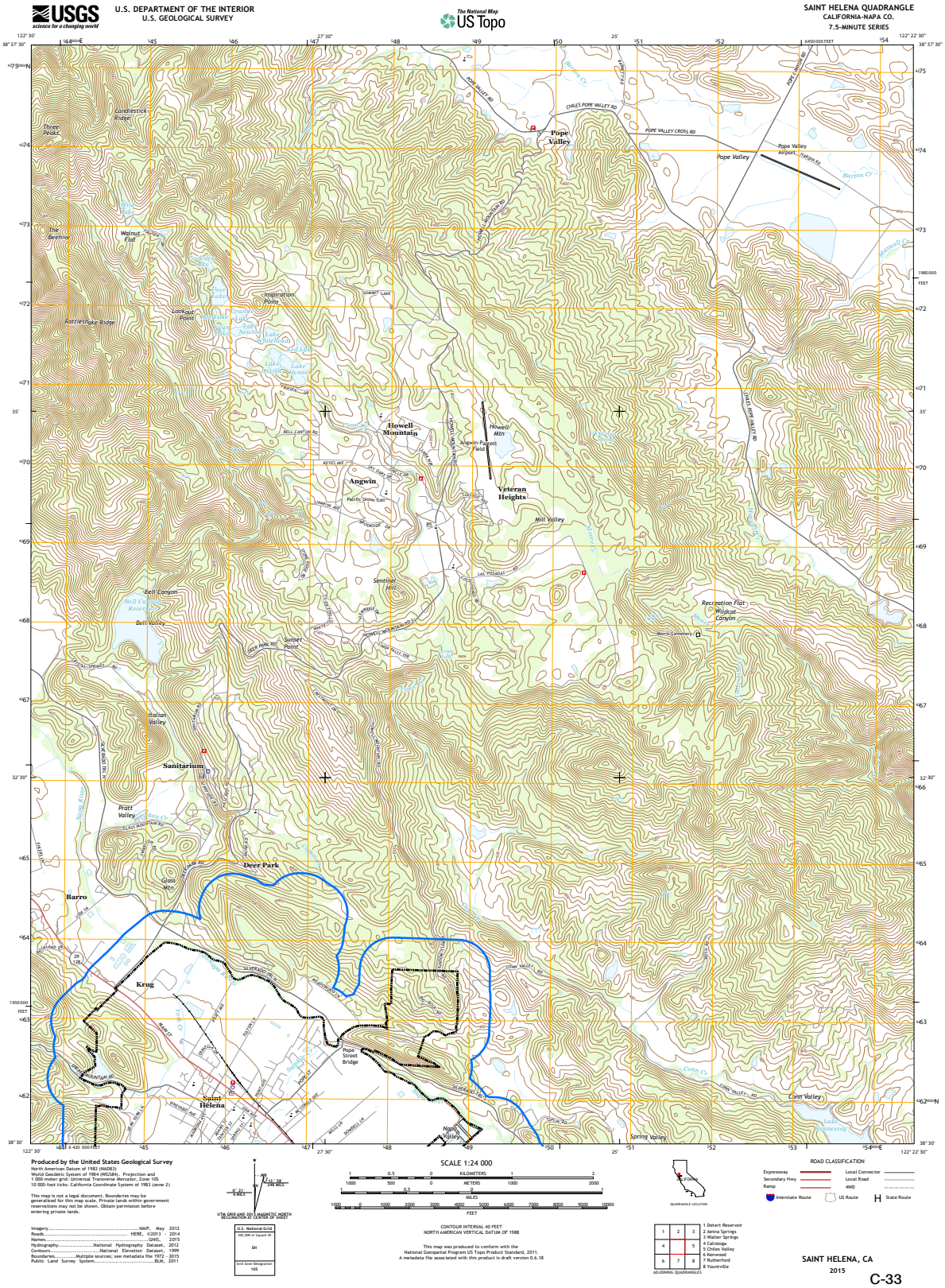

USGS
science for a changing world
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map
US Topo
RUTHERFORD QUADRANGLE
CALIFORNIA
7.5-MINUTE SERIES
Saint Helena
Thomas
Zinfandel
Rutherford
Oakville
Yountville
Enchanted Hills
Napa River
Lake Hennessey
Sulphur Canyon
Heath Canyon
Bale Slough
Bear Canyon
Campbell Canyon
Wing Canyon
Segassia Canyon
Nunns Canyon
Stuart Canyon
Hooker Canyon
Devils Canyon
The Cove
Veterans Peak
Yountville Hills
Cole Flat
Brushy Peaks
Mt Saint John
Bald Mtn
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 10S
10 000-foot ticks: California Coordinate System of 1983 (zone 2)
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.
Imagery.....NAIP, May 2012
Roads.....HERE, ©2013 - 2014
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2012
Contours.....National Elevation Dataset, 1999
Boundaries.....Multiple sources; see metadata file 1972 - 2015
Public Land Survey System.....BLM, 2011
UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
U.S. National Grid
100,000-m Square ID
EH
Grid Zone Designation
10S
SCALE 1:24 000
KILOMETERS
METERS
MILES
FEET
CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18
QUADRANGLE LOCATION
ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
1 Calistoga
2 Saint Helena
3 Chiles Valley
4 Kenwood
5 Yountville
6 Glen Ellen
7 Sonoma
8 Napa
ADJOINING QUADRANGLES
RUTHERFORD, CA
2015
C-32
NSN. 7643016357574
NGA REF NO. USGSX24K39037

Figure 3


USGS
science for a changing world
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map
US Topo
SAINT HELENA QUADRANGLE
CALIFORNIA-NAPA CO.
7.5-MINUTE SERIES
Pope Valley
Howell Mountain
Angwin
Veteran Heights
Sanitarium
Deer Park
Barro
Krug
Saint Helena
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
ROAD CLASSIFICATION
SAINT HELENA, CA
2015
C-33

Katharine Pan

From: Noah Housh
Sent: Wednesday, May 16, 2018 4:44 PM
To: Katharine Pan; Andrew Hill
Subject: FW: SB 18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County

FYI

NOAH HOUSH
PLANNING & COMMUNITY IMPROVEMENT DIRECTOR
City of St. Helena | Planning & Community Improvement Department
1480 Main Street | St. Helena, CA 94574
Direct: (707) 968-2659 | NHoush@cityofsthelena.org | http://cityofsthelena.org/planning

---

From: THPO@gratonrancheria.com [mailto:THPO@gratonrancheria.com]
Sent: Wednesday, May 16, 2018 3:37 PM
To: Noah Housh
Subject: SB 18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County

Dear Noah Housh,

The Federated Indians of Graton Rancheria, a federally recognized Tribe and sovereign government has received your correspondence requesting information on a project located at SB 18 Tribal Consultation for the City of St. Helena General Plan Update, City of St. Helena, Napa County. The Tribe has reviewed the location of the project and we have determined it is not in our traditional ancestral territory, therefore have no comments on this project, at this time. We appreciate the opportunity to review the project proposal. If you have any additional questions regarding this letter please feel free to email my office at thpo@gratonrancheria.com or call the office at (707) 566-2288.

Sincerely,
Buffy McQuillen
Tribal Heritage Preservation Officer (THPO)
Native American Graves Protection and Repatriation Act (NAGPRA)
Office: 707.566.2288; ext. 137
Cell: 707.318.0485
FAX: 707.566.2291

Antonette Tomic
THPO Administrative Assistant
Federated Indians of Graton Rancheria

6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928
Office: 707.566.2288, ext. 143
Fax: 707.566.2291
atomic@gratonrancheria.com

Federated Indians of Graton Rancheria and Tribal TANF of Sonoma & Marin - Proprietary and Confidential
CONFIDENTIALITY NOTICE: This transmittal is a confidential communication or may otherwise be privileged. If you are not the intended recipient, you are hereby notified that you have received this transmittal in error and that any review, dissemination, distribution or copying of this transmittal is strictly prohibited. If you have received this communication in error, please notify this office at 707-566-2288, and immediately delete this message and all its attachments, if any. Thank you

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Appendix D: Buildout Methodology

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Note that for the purposes of this EIR, the numbering of the unincorporated study areas has changed from the original numbering in the Buildout Projections Memorandum. As described in Chapter 2.0: Project Description and shown in Figure 2.1-1, the study areas are numbered from north to south throughout the EIR. All other details regarding the study areas are unchanged.

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DYETT & BHATIA
Urban and Regional Planners

MEMORANDUM

To: Noah Housh, Planning and Community Improvement Director, City of St. Helena
From: Andrew Hill, Associate Principal and Katharine Pan, Associate
Re: City of St Helena General Plan Update EIR Buildout Projections
Date: June 20, 2018

Dear Noah:

This memo describes the process for developing buildout projections for the St. Helena General Plan Update, including baseline year (2018) land use assumptions and the projected change in population, housing units and jobs that can reasonably be expected under the General Plan through 2040. The buildout projections, included as Attachment A to this memo, will be used to evaluate the potential environmental impacts of General Plan 2040 implementation, including impacts associated with air quality, GHG emissions, traffic, utilities, and public services.

To facilitate the traffic modeling, the land use assumptions have been compiled by Traffic Analysis Zones (TAZs) that correspond to those in the regional traffic model. A map of TAZs in St. Helena is included as Attachment B to this memo. Data from State, regional and local agencies was used to validate and calibrate the buildout projections, as described below. Overall, it is projected that implementation of General Plan 2040 will result in 746 new residents, 332 new homes, and 932 new jobs within the City limits and the Sphere of Influence (SOI) between 2018 and 2040. Accounting for growth in the three unincorporated Study Areas which are not subject to St. Helena policies or regulations, it is projected there will be 7,288 residents, 3,286 homes, and 7,011 jobs in the Planning Area in 2040.

Baseline Year Land Use Assumptions

To establish existing population, housing units and jobs in the Planning Area, which includes the City of St. Helena and the three adjacent unincorporated Study Areas, we started with the land use assumptions from the regional traffic model and adjusted with reference to data from the California Department of Finance (DoF), the Association of Bay Area Governments (ABAG), and the Napa County Assessor. Fehr & Peers provided population, housing and employment assumptions from the traffic model organized by TAZ for the years 2010 and 2040 and broken out into the employment categories required for the traffic model.

Population and Housing

To update the 2010 population and housing assumptions from the model, we used 2018 data parcel from the Napa County Assessor to determine the number of housing units in St. Helena today. Citywide totals were compared with DoF estimates from 2018 to verify accuracy. Steps taken:

- Assessor data identifies 1,888 single-family residential parcels in the city (not including vacant residential parcels). Assumed one single-family unit per APN for these parcels.

755 Sansome St, Suite 400 | T 415 956 4300
San Francisco, CA 94111 | F 415 956 7315
www.dyettandbhatia.com

- City staff identified 208 existing homes in the Vineyard Valley mobile home park on Pop Street, all in TAZ 199. These were also counted as single-family units.
- Assessor data identifies 74 multi-family residential parcels in the planning area (not including vacant residential parcels). To establish the number of units on each of these parcels, we consulted three sources: the Napa County Assessor Parcel Data eService online database; Zillow's online real estate data; and Google Earth. Number of multi-family units was established for each parcel.
- Accessory dwelling units (ADUs) constructed prior to 2010 are not included in the Assessor data, as ADUs were not reported to the County prior to this date. Based on conversation with City staff, we assumed 50 ADUs built prior to 2010. These were distributed by TAZ throughout St. Helena proportional to the number of parcels identified with existing single-family land use.
- The total of single-family, ADU, mobile home, and multi-family units in the city in 2018 was determined to be 2,735 compared with 2,874 estimated by DoF in 2018 for a difference of 139 units.
- A vacancy rate of 14 percent was applied the total number of units in order to determine the number of households in St Helena, based on DoF data from 2018.
- Household population was then calculated using an average household size of 2.44 for the City of St. Helena from DoF data (2018).
- Total population was adjusted to account for group quarters per TAZ, matching the assumptions of the traffic model.
- Similarly, Assessor data was used to estimate the number of existing housing units within the three study areas.
- An average household size of 2.69 was applied for units in the study areas, based on 2010 U.S. Census data for unincorporated Napa County.
- Total population was adjusted to account for group quarters per TAZ, matching the assumptions of the traffic model.
- Parcel data from the County Assessor was spatially joined to a map of TAZs in ArcGIS and the number of single-family and multi-family units within each TAZ was tabulated.

Employment

To update the 2010 employment assumptions from the model so that they represent a best estimate of employment levels in the city in 2018, we calibrated with reference to County Assessor data and the ABAG Projections 2013 dataset, which represents the best available data on citywide employment levels. Steps taken:

- Citywide 2018 employment was interpolated from the job numbers for 2015 and 2020 in the ABAG data set. Linear interpolation was performed for each of the 6 categories in the ABAG dataset to establish a citywide total of 5,725 jobs in 2018.
- The employment categories in the ABAG dataset generally align with those in the model, but some consolidation was necessary to align the ABAG job categories with those in the

model. Specifically, the following categories from the ABAG data do not exist in the model and were consolidated into the general Service category required for traffic modeling: Financial and Professional Service Jobs; Health, Education and Recreational Service Jobs.

- The increment of new jobs in each of the model categories was then calculated by comparing the 2010 employment totals from the model with the 2018 interpolated jobs numbers. The resulting increment is as shown in Table 1:

Table 1: New Jobs since 2010

Model Employment Category	*2010 Model Assumptions*	*2018 Estimates*	*New Jobs Since 2010*
Agriculture	885	890	5
Manufacturing	1187	1220	33
Retail	818	845	27
Service	2090	2090	0
Other	659	700	41
Total	5639	5745	106

Source: Dyett & Bhatia, 2018.

- To determine the TAZs in which to locate the new jobs, we used Assessor data to identify the relative concentration of jobs in the employment categories from the model in the city in 2018 and distributed the new jobs into TAZs accordingly:
  - 5 agricultural jobs in TAZ 199, where the Krug Winery is located.
  - 15 manufacturing jobs in TAZ 201, 15 in TAZ 200 and 3 in TAZ 199, based on the concentration of industrial and warehouse uses.
  - 18 retail jobs in TAZ 202 where the concentration of commercial uses in the city is highest, and 3 in each of TAZs 199, 200 and 201 which also have commercial uses.
  - 33 other jobs (which include public service jobs) in TAZ 202 where City offices and civic organizations are concentrated and 8 other jobs in TAZ 199.
- To estimate existing employment in the three study areas, we used building square footage information from the Assessor parcel data, where available, and supplemented with spatial calculations from aerial maps in GIS. Then we applied employment density factors from a US Green Building Council occupancy study (2004 to 2008) to estimate the number of jobs.
- For TAZ 172, which includes all of Study Area 1 and the bulk of Study Area 2 (except for approximately 22 acres immediately north of Zinfandel Lane on both sides of Hwy 29), we assumed jobs in the following categories, based on building square footages and employment densities as shown in Table 2:

Table 2: TAZ 172 Employment Categories

Land Use	*Employment Density*	*Total Building Square Feet*	*Jobs*	*Model Job Category*
Commercial	550	67,237	122	RETAIL
Hotel/Lodging	1500	8,000	5	RETAIL

Industrial	461	27,000	59	MANUFACTURING
Office	250	26,239	105	SERVICE
Winery	920	90,579	98	AGRICULTURE
Grand Total		219,055	390	

Source: Dyett & Bhatia, 2018

- For the portion of TAZ 167 in Study Area 2, which includes the Napa Farmhouse Inn, we assumed 7 retail jobs associated with the property, consistent with job categorization from the traffic model. This is based on a building square footage of 7,145 derived from Assessor parcel data and the employment density factor above for Hotel/Lodging.
- Study Area 3 is in TAZ 176, which contains several commercial properties; however, only the Meadowood Golf Club Resort with 133,228 square feet of building space and Hunter II Wines with 6,309 square feet of building space are within Study Area 3. As such, we assumed 90 retail jobs and 7 agriculture jobs in TAZ 176 based on building square footage from Assessor parcel data and the employment density factors above.

Future Year 2040 Projections

To project residential and non-residential development likely to occur under the General Plan Update through 2040, we considered the potential for growth on a variety of sites within the City limit, including: sites on the City's pipeline projects list; Housing Element opportunity sites, the Change Areas identified in the draft General Plan; and vacant sites designated as residential by the draft General Plan. Additionally, we projected growth likely to occur in the Study Areas, which are subject to Napa County land use and zoning regulations. The specific assumptions and methods used are described below.

Overall, there is more capacity for market rate housing development within the City limits than would be allowed under the City's Growth Management System over the planning horizon. The Growth Management System caps the number of market rate housing units that can be built in a given year at 9, although affordable units are exempted from this cap. Reviewing the trend in development applications received by the City in recent years and in consideration of the regional housing market forecast, we have assumed development of 9 market rate units per year, each year over the life of the Plan. Additionally, while the City has seen construction of 4 affordable units per year on average in recent years, in view of new State housing legislation aimed at stimulating affordable housing production and policies in the draft General Plan Update, we have assumed production of 6 affordable units per year, each year over the life of the Plan. As such, we have assumed an annual rate of 15 housing units through 2040 and used this as a control total. For employment projections, Association of Bay Area Governments (ABAG) job projections for the City of St. Helena through 2040 were used as control totals.

These 2040 buildout projections represent a best estimate based on past trends and foreseeable regulations, although there is no guarantee that development will occur at this rate. Additionally, buildout projections have been developed with the intent of estimating the maximum amount of growth likely to occur under the General Plan Update in order to provide a conservative estimate for the purpose of the environmental analysis.

Pipeline Projects

Pipeline projects include those projects that are currently under review or reviewed but not yet constructed. The list of pipeline projects considered in the projections was based on the list of Planning Projects on the City's website as of May 30, 2018 and a supplemental list provided by staff, and includes those listed in Table 3. Where possible, information on resulting dwelling units and jobs was obtained through project application materials or information from City staff. Where project-specific information was not available, job numbers were estimated based on square feet per employee assumptions from the U.S. Green Building Council (USGBC) (https://www.usgbc.org/credits/new-construction-existing-buildings-commercial-interiors-core-and-shell-schools-new-constr-3).

Table 3: Pipeline Projects

Project	*Dwelling Units*	*Non-Residential Development*	*Jobs*	*Notes*
St. Helena Montessori School	0	10,000 sqft	16 service	Used USGBC assumption of 1,300 sqft/employee for Educational (daycare)
St. Helena Estates	51 single-family	N/A	N/A	From written statement
1760 Dean York Lane	1	N/A	N/A	Construction of single-family home and ADU result in a net increase of 1 unit
Vineland Station Hotel	0	123,000 sqft	49 retail; 33 service	No employee counts provided in application materials. Used USGBC assumption of 1,500 sqft/employee for hotel.
Fulton Office Building	0	11,000 sqft	44 service	Employee estimate taken from water use assessment
Salvestrin Winery	0	1,500 sqft	2 manufacturing	Employee estimate taken from written statement
500 Mills Lane	1 single-family	N/A	N/A	Proposed one-story home
Redmon Winery	0	9,000 sqft	12 manufacturing	Assumed 750 sqft/employee based on the ratio from Salvestrin ratio
2525 Madrona Avenue	1 single-family	N/A	N/A	From water use assessment

OK Tire	0	4,700 sqft	8 retail	Used USGBC assumption of 600 sqft/employee for Retail or Service
Farmstead Hotel	0	50,000 sqft	33 service	Used USGBC assumption of 1,500 sqft/employee for Hotel
Komes Custom Crush	0	10,000 sqft	12 manufacturing	8 full time and 4 part time staff from traffic analysis
Hunter Residential Subdivision	51 single-family; 25 multi-family	N/A	N/A	Information from City staff
Herdell Printing	0	21,000 sqft	24 manufacturing	Employee estimate taken from water use assessment
St. Helena Winery	0	No information	3 manufacturing	Employee estimate taken from water use assessment

Source: City of St. Helena, 2018; Dyett & Bhatia, 2018.

Future Development within City Limits

Future development projected in the city considers potential development on the Housing Element housing inventory opportunity sites, in the draft General Plan Change Areas, and on vacant sites designated as residential in the draft General Plan. These projections are based on the assumptions shown in Table 4 and Table 5, which were developed as follows.

- **Residential Assumptions.** Review of year-built information from the Assessor's Roll showed that the average density of residential development since 2010 has been 2.0 du/ac for areas currently designated Low Density Residential, 7.0 for areas currently designated Medium Density Residential, and 9.0 for areas designated High Density Residential. As the draft General Plan would increase allowable densities in each designation, assumed densities for future development in these categories are slightly higher.

Table 4: Residential Assumptions

Land Use Designation	*Min. du/ac*	*Max du/ac*	*Assumed du/ac*	*Percent Residential*
Low Density Residential	1.0	5.0	3.0	100%
Medium Density Residential	5.1	16.0	10.0	100%
High Density Residential	16.1	28.0	22.0	100%
Public & Quasi-Public	N/A	N/A	10.0	100%
Mixed Use	N/A	20.0	20.0	40%

Source: City of St. Helena, 2016; Dyett & Bhatia, 2018.

- **Non-Residential Assumptions.** Review of the Assessor's Roll showed that non-residential development in the areas currently designated Central Business for which square footage information is available has an average FAR of 0.5. As there is currently no mixed-use development in the Planning Area, the assumed FAR for the Mixed Use designation is the half of the maximum. We assumed a 50-percent split between retail and service uses.

Table 5: Non-Residential Assumptions

Land Use Designation	*Max. FAR*	*Assumed FAR*	*Percent Non-Residential*	*Percent Retail*	*Percent Service*
Central Business	2.0	0.5	100%	50%	50%
Mixed-Use	1.0	0.5	60%	50%	50%

Source: City of St. Helena, 2016; Dyett & Bhatia, 2018.

The projections were made as follows.

- **Housing Element.**
  - The Housing Element identifies 11 key housing opportunity sites. Staff anticipated that opportunity sites 1, 3, 6, 9, 10, and 11 were the most likely to develop over the planning horizon, as well as an additional site at 1343 Spring Street. As opportunity site 1 is a pipeline project listed above, it has already been accounted for and was not included in this Housing Element analysis. The projections focus on the remaining opportunity sites only. It is important to note that these sites may not actually develop over the planning horizon while other sites do. The intent behind this method was to project a reasonable number of new units with a reasonable distribution across the TAZs.
  - If a parcel was located in sites 3, 6, 9, 10, 11, or the 1343 Spring Street site, we multiplied the acreage by the assumed du/ac of the appropriate draft General Plan designation, and the percentage of the site assumed to be residential. It was assumed that only one of the two parcels on Site 6. This method found 112 dwelling units for the six sites, which were counted as multi-family units based on multiple units yielded on each site.
- **Change Areas.**
  - The draft General Plan identifies 13 Change Areas. Staff anticipated that Change Areas 1, 4, 5, 6, 10, and 11 were the most likely to develop over the planning horizon. As a portion of Change Area 6 is a pipeline project listed above, it has already been accounted for and was not included in this Change Area analysis. The projections focus on the remaining Change Areas only. It is important to note that these sites may not actually develop over the planning horizon while other sites do. The intent behind this method was to project a reasonable number of new units and jobs with a reasonable distribution across the TAZs.
  - For residential development, if a parcel was located in Change Areas 1,4,5,6,10, or 11, we multiplied the acreage by the assumed du/ac of the appropriate draft General Plan designation, and the percentage of the site assumed to be residential. This

method found 33 units for the six areas, which were counted as multi-family units based on the Mixed Use designation of the areas.

  - For non-residential development, if a parcel was located in Change Areas 1, 4, 5, 6, 10, or 11, we multiplied the square footage of the site by the assumed floor area ratio (FAR) and percentage of the site assumed to be non-residential to project the square footage of non-residential development. We then used the assumed percentage of retail or service land uses to project retail and service square footage and divided those amounts by assumed square footage per employee in each of those sectors. For retail, we assumed 550 square feet per employee and for service, we assumed 600 square feet per employee, based on the USGBC's ratios for Retail (general) and Retail or service, respectively. This method found 220 retail jobs and 201 service jobs in the Change Areas.

- **Vacant Residential Sites.**
  - If a parcel had a residential draft General Plan designation, its existing land use was identified as vacant, and it was not already identified as a pipeline project, Housing Element opportunity site, or Change Area, then it was considered. For these 19 parcels, the acreage was multiplied by the assumed du/ac of the appropriate draft General Plan designation, and the percentage of the site assumed to be residential. If the parcel yielded two units or fewer, they were counted as single-family (allowing for ADUs). This method found 21 single-family (including ADUs) units.
- **Accessory Dwelling Units.**
  - Based on Housing Element progress reports provided by the City for 2011 through 2018, we found that there has been an average of two ADUs permitted each year during that time. In order to capture future ADU development in established residential areas, we assumed that the trend would continue, yielding 44 new ADUs over the planning horizon. As eight ADUs from new development were accounted for under the analysis of vacant residential sites, we sought to distribute the remaining 36 ADUs across existing residential neighborhoods. We found the proportion of Low Density Residential and Medium Density Residential draft General Plan designations in each TAZ with existing residential parcels, and distributed the 36 ADUs accordingly.

The analysis yielded a total of 163 single-family units (including ADUs) and 169 multi-family units. With the City of St. Helena Growth Management System, up to 198 (nine units a year over 22 years) of these units could be developed as market-rate units, and 134 of these units would be affordable units or ADUs or otherwise excepted. Number of households was estimated assuming a 14 percent vacancy rate of total units. Household population was estimated using 2.45 persons per household as projected for 2040 by ABAG. Total population was adjusted to account for group quarters per TAZ, matching the assumptions of the traffic model for 2040.

Projected employment in the city would total 276 retail jobs, 328 service jobs, and 53 manufacturing jobs. For Other and Agricultural employment, which would generally be unaffected by proposed land use changes, we used the 2040 model assumptions. The resulting total of 6,378 jobs in the city in 2040 is roughly 150 greater than the 6,230 jobs projected by ABAG for 2040 in 2013. This

difference between projections may be explained by the increased development opportunity represented by the increase in available Central Business-designated land as well as the transition of some Service Commercial-designated sites to the higher density Mixed Use designation, which would not have been considered at the time of ABAG's 2013 projections.

Future Development in Study Areas

For residential development in the Study Areas, we referred to Napa County's Growth Management System, which limits the number of new housing units permitted in the county per year to accommodate an annual population growth rate of not more than 1 percent. Using the 2018 baseline population for the Study Area TAZs, a 1 percent increase in population growth per year would allow for 135 new persons by 2040. Using an average household size of 2.69 from the 2010 Census, this would allow for 50 new units in the Study Areas by 2040, all assumed to be single-family.

For non-residential development, we assumed that the draft General Plan would not have an effect on development in the TAZs over the planning horizon and relied on overall trends predicted by the traffic model. We used the 2018 baseline estimates for employment in portions of each TAZ within the Planning Area and 2010 model assumptions for employment in each TAZ overall to calculate the percentage of total TAZ employment represented by the portions in the Planning Area. We then applied these percentages to the 2040 model assumptions for total employment in each TAZ to estimate projected increases.

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Appendix E: Air Quality Modeling Results

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St. Helena GP - Baseline (2018) Operational Emissions

Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,215.40	1000sqft	27.90	1,215,400.00	0
General Office Building	548.97	1000sqft	12.60	548,970.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	402.59	1000sqft	9.24	402,590.00	0
Single Family Housing	1,938.00	Dwelling Unit	629.22	3,488,400.00	5543

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,179,180.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,537,540.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,920,725.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	8,762,175.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	12,400.00	0.00
tblConstructionPhase	NumDays	800.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

tblConstructionPhase	NumDays	1,240.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	480.00	0.00
tblConstructionPhase	PhaseEndDate	8/5/2082	3/22/2079
tblConstructionPhase	PhaseEndDate	11/6/2075	4/26/2028
tblConstructionPhase	PhaseEndDate	9/22/2021	8/29/2018
tblConstructionPhase	PhaseEndDate	4/26/2028	7/26/2023
tblConstructionPhase	PhaseEndDate	3/22/2079	11/6/2075
tblConstructionPhase	PhaseEndDate	7/26/2023	9/22/2021
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	679.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,148.00	0.00
tblTripsAndVMT	WorkerTripNumber	430.00	0.00
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.65
tblVehicleTrips	ST_TR	1.32	0.86
tblVehicleTrips	ST_TR	2.46	1.60
tblVehicleTrips	ST_TR	5.00	3.24
tblVehicleTrips	ST_TR	9.91	6.43
tblVehicleTrips	ST_TR	42.04	27.27
tblVehicleTrips	SU_TR	6.07	3.94
tblVehicleTrips	SU_TR	0.68	0.44
tblVehicleTrips	SU_TR	1.05	0.68
tblVehicleTrips	SU_TR	4.36	2.83
tblVehicleTrips	SU_TR	8.62	5.59
tblVehicleTrips	SU_TR	20.43	13.25
tblVehicleTrips	WD_TR	6.59	4.28

tblVehicleTrips	WD_TR	6.97	4.52
tblVehicleTrips	WD_TR	11.03	7.16
tblVehicleTrips	WD_TR	68.93	44.72
tblVehicleTrips	WD_TR	4.99	3.24
tblVehicleTrips	WD_TR	9.52	6.18
tblVehicleTrips	WD_TR	44.32	28.75
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	77.52	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	77.52	0.00

2.0 Emissions Summary

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	43.7160	0.4468	34.4993	0.0237		2.0344	2.0344		2.0344	2.0344	170.9300	108.6236	279.5536	0.0344	0.0165	285.3209
Energy	0.5986	5.2478	3.1501	0.0327		0.4136	0.4136		0.4136	0.4136	0.0000	12,730.9537	12,730.9537	0.7304	0.2362	12,819.6134
Mobile	16.2237	88.3870	188.2917	0.4846	35.9427	0.7470	36.6896	9.6572	0.7069	10.3641	0.0000	44,420.9051	44,420.9051	2.0756	0.0000	44,472.7951
Waste						0.0000	0.0000		0.0000	0.0000	1,078.4991	0.0000	1,078.4991	63.7375	0.0000	2,671.9359
Water						0.0000	0.0000		0.0000	0.0000	198.1797	599.1973	797.3770	20.4093	0.4919	1,454.1827
Total	**60.5383**	**94.0815**	**225.9411**	**0.5409**	**35.9427**	**3.1949**	**39.1376**	**9.6572**	**3.1548**	**12.8120**	**1,447.6088**	**57,859.6796**	**59,307.2884**	**86.9872**	**0.7446**	**61,703.8480**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	43.7160	0.4468	34.4993	0.0237		2.0344	2.0344		2.0344	2.0344	170.9300	108.6236	279.5536	0.0344	0.0165	285.3209
Energy	0.5986	5.2478	3.1501	0.0327		0.4136	0.4136		0.4136	0.4136	0.0000	12,730.9537	12,730.9537	0.7304	0.2362	12,819.6134
Mobile	16.2237	88.3870	188.2917	0.4846	35.9427	0.7470	36.6896	9.6572	0.7069	10.3641	0.0000	44,420.9051	44,420.9051	2.0756	0.0000	44,472.7951
Waste						0.0000	0.0000		0.0000	0.0000	1,078.4991	0.0000	1,078.4991	63.7375	0.0000	2,671.9359
Water						0.0000	0.0000		0.0000	0.0000	198.1797	599.1973	797.3770	20.4093	0.4919	1,454.1827
Total	**60.5383**	**94.0815**	**225.9411**	**0.5409**	**35.9427**	**3.1949**	**39.1376**	**9.6572**	**3.1548**	**12.8120**	**1,447.6088**	**57,859.6796**	**59,307.2884**	**86.9872**	**0.7446**	**61,703.8480**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	9/23/2021	9/22/2021	5	0	
3	Grading	Grading	7/27/2023	7/26/2023	5	0	
4	Building Construction	Building Construction	4/27/2028	4/26/2028	5	0	
5	Paving	Paving	11/7/2075	11/6/2075	5	0	
6	Architectural Coating	Architectural Coating	3/23/2079	3/22/2079	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	16.2237	88.3870	188.2917	0.4846	35.9427	0.7470	36.6896	9.6572	0.7069	10.3641	0.0000	44,420.9051	44,420.9051	2.0756	0.0000	44,472.7951
Unmitigated	16.2237	88.3870	188.2917	0.4846	35.9427	0.7470	36.6896	9.6572	0.7069	10.3641	0.0000	44,420.9051	44,420.9051	2.0756	0.0000	44,472.7951

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,520.92	2,738.85	2320.66	6,246,029	6,246,029
General Light Industry	5,493.61	1,045.24	534.78	10,271,394	10,271,394
General Office Building	3,930.63	878.35	373.30	7,391,929	7,391,929
Government Office Building	8,559.41	0.00	0.00	15,133,033	15,133,033
Mobile Home Park	673.92	673.92	588.64	1,637,932	1,637,932
Single Family Housing	11,976.84	12,461.34	10833.42	29,412,080	29,412,080
Strip Mall	11,574.46	10,978.63	5334.32	26,231,908	26,231,908
Total	44,729.78	28,776.34	19,985.11	96,324,306	96,324,306

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6,807.2383	6,807.2383	0.6169	0.1276	6,860.6964
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6,807.2383	6,807.2383	0.6169	0.1276	6,860.6964
NaturalGas Mitigated	0.5986	5.2478	3.1501	0.0327		0.4136	0.4136		0.4136	0.4136	0.0000	5,923.7153	5,923.7153	0.1135	0.1086	5,958.9170
NaturalGas Unmitigated	0.5986	5.2478	3.1501	0.0327		0.4136	0.4136		0.4136	0.4136	0.0000	5,923.7153	5,923.7153	0.1135	0.1086	5,958.9170

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	6.00712e+006	0.0324	0.2768	0.1178	1.7700e-003		0.0224	0.0224		0.0224	0.0224	0.0000	320.5629	320.5629	6.1400e-003	5.8800e-003	322.4679
General Light Industry	3.20623e+007	0.1729	1.5717	1.3202	9.4300e-003		0.1195	0.1195		0.1195	0.1195	0.0000	1,710.9639	1,710.9639	0.0328	0.0314	1,721.1313
General Office Building	8.98664e+006	0.0485	0.4405	0.3700	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	479.5613	479.5613	9.1900e-003	8.7900e-003	482.4111
Government Office Building	3.13322e+006	0.0169	0.1536	0.1290	9.2000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	167.2004	167.2004	3.2000e-003	3.0700e-003	168.1940
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	5.63281e+007	0.3037	2.5955	1.1045	0.0166		0.2099	0.2099		0.2099	0.2099	0.0000	3,005.8843	3,005.8843	0.0576	0.0551	3,023.7468
Strip Mall	954138	5.1400e-003	0.0468	0.0393	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.9165	50.9165	9.8000e-004	9.3000e-004	51.2190
Total		**0.5986**	**5.2477**	**3.1501**	**0.0327**		**0.4136**	**0.4136**		**0.4136**	**0.4136**	**0.0000**	**5,923.7153**	**5,923.7153**	**0.1135**	**0.1086**	**5,958.9170**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	6.00712e+006	0.0324	0.2768	0.1178	1.7700e-003		0.0224	0.0224		0.0224	0.0224	0.0000	320.5629	320.5629	6.1400e-003	5.8800e-003	322.4679
General Light Industry	3.20623e+007	0.1729	1.5717	1.3202	9.4300e-003		0.1195	0.1195		0.1195	0.1195	0.0000	1,710.9639	1,710.9639	0.0328	0.0314	1,721.1313
General Office Building	8.98664e+006	0.0485	0.4405	0.3700	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	479.5613	479.5613	9.1900e-003	8.7900e-003	482.4111
Government Office Building	3.13322e+006	0.0169	0.1536	0.1290	9.2000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	167.2004	167.2004	3.2000e-003	3.0700e-003	168.1940
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	5.63281e+007	0.3037	2.5955	1.1045	0.0166		0.2099	0.2099		0.2099	0.2099	0.0000	3,005.8843	3,005.8843	0.0576	0.0551	3,023.7468
Strip Mall	954138	5.1400e-003	0.0468	0.0393	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.9165	50.9165	9.8000e-004	9.3000e-004	51.2190
Total		**0.5986**	**5.2477**	**3.1501**	**0.0327**		**0.4136**	**0.4136**		**0.4136**	**0.4136**	**0.0000**	**5,923.7153**	**5,923.7153**	**0.1135**	**0.1086**	**5,958.9170**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.56144e+006	371.7924	0.0337	6.9700e-003	374.7121
General Light Industry	1.00392e+007	1,457.1860	0.1321	0.0273	1,468.6295
General Office Building	9.78814e+006	1,420.7435	0.1288	0.0266	1,431.9008
Government Office Building	3.41266e+006	495.3464	0.0449	9.2900e-003	499.2364
Mobile Home Park	1.11344e+006	161.6157	0.0147	3.0300e-003	162.8849
Single Family Housing	1.56795e+007	2,275.8761	0.2063	0.0427	2,293.7488
Strip Mall	4.30369e+006	624.6783	0.0566	0.0117	629.5840
Total		**6,807.2383**	**0.6169**	**0.1276**	**6,860.6964**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.56144e+006	371.7924	0.0337	6.9700e-003	374.7121
General Light Industry	1.00392e+007	1,457.1860	0.1321	0.0273	1,468.6295
General Office Building	9.78814e+006	1,420.7435	0.1288	0.0266	1,431.9008
Government Office Building	3.41266e+006	495.3464	0.0449	9.2900e-003	499.2364
Mobile Home Park	1.11344e+006	161.6157	0.0147	3.0300e-003	162.8849
Single Family Housing	1.56795e+007	2,275.8761	0.2063	0.0427	2,293.7488
Strip Mall	4.30369e+006	624.6783	0.0566	0.0117	629.5840
Total		**6,807.2383**	**0.6169**	**0.1276**	**6,860.6964**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	43.7160	0.4468	34.4993	0.0237		2.0344	2.0344		2.0344	2.0344	170.9300	108.6236	279.5536	0.0344	0.0165	285.3209
Unmitigated	43.7160	0.4468	34.4993	0.0237		2.0344	2.0344		2.0344	2.0344	170.9300	108.6236	279.5536	0.0344	0.0165	285.3209

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.2757					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	26.1097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	12.6981	0.2092	14.0261	0.0226		1.9227	1.9227		1.9227	1.9227	170.9300	75.4092	246.3392	1.4500e-003	0.0165	251.2817
Landscaping	0.6325	0.2376	20.4733	1.0700e-003		0.1117	0.1117		0.1117	0.1117	0.0000	33.2144	33.2144	0.0330	0.0000	34.0392
Total	**43.7160**	**0.4468**	**34.4993**	**0.0237**		**2.0344**	**2.0344**		**2.0344**	**2.0344**	**170.9300**	**108.6236**	**279.5536**	**0.0344**	**0.0165**	**285.3209**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.2757					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	26.1097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	12.6981	0.2092	14.0261	0.0226		1.9227	1.9227		1.9227	1.9227	170.9300	75.4092	246.3392	1.4500e-003	0.0165	251.2817
Landscaping	0.6325	0.2376	20.4733	1.0700e-003		0.1117	0.1117		0.1117	0.1117	0.0000	33.2144	33.2144	0.0330	0.0000	34.0392
Total	**43.7160**	**0.4468**	**34.4993**	**0.0237**		**2.0344**	**2.0344**		**2.0344**	**2.0344**	**170.9300**	**108.6236**	**279.5536**	**0.0344**	**0.0165**	**285.3209**

7.0 Water Detail

7.1 Mitigation Measures Water

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	797.3770	20.4093	0.4919	1,454.1827
Unmitigated	797.3770	20.4093	0.4919	1,454.1827

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	38.3757 / 24.1934	54.6061	1.2543	0.0303	95.0000
General Light Industry	281.061 / 0	309.9145	9.1784	0.2204	605.0499
General Office Building	97.5705 / 59.8013	137.9674	3.1890	0.0771	240.6623
Government Office Building	38.0235 / 23.3047	53.7662	1.2428	0.0300	93.7867
Mobile Home Park	13.552 / 8.54368	19.2837	0.4430	0.0107	33.5484
Single Family Housing	126.269 / 79.6041	179.6717	4.1271	0.0998	312.5807
Strip Mall	29.8209 / 18.2773	42.1675	0.9747	0.0236	73.5546
Total		**797.3770**	**20.4093**	**0.4919**	**1,454.1827**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	38.3757 / 24.1934	54.6061	1.2543	0.0303	95.0000
General Light Industry	281.061 / 0	309.9145	9.1784	0.2204	605.0499
General Office Building	97.5705 / 59.8013	137.9674	3.1890	0.0771	240.6623
Government Office Building	38.0235 / 23.3047	53.7662	1.2428	0.0300	93.7867
Mobile Home Park	13.552 / 8.54368	19.2837	0.4430	0.0107	33.5484
Single Family Housing	126.269 / 79.6041	179.6717	4.1271	0.0998	312.5807
Strip Mall	29.8209 / 18.2773	42.1675	0.9747	0.0236	73.5546
Total		**797.3770**	**20.4093**	**0.4919**	**1,454.1827**

8.0 Waste Detail

8.1 Mitigation Measures Waste

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,078.4991	63.7375	0.0000	2,671.9359
Unmitigated	1,078.4991	63.7375	0.0000	2,671.9359

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	270.94	54.9984	3.2503	0.0000	136.2561
General Light Industry	1507.1	305.9277	18.0798	0.0000	757.9229
General Office Building	510.54	103.6350	6.1247	0.0000	256.7513
Government Office Building	178	36.1324	2.1354	0.0000	89.5165
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2328.06	472.5751	27.9284	0.0000	1,170.7849
Strip Mall	422.72	85.8083	5.0711	0.0000	212.5865
Total		**1,078.4991**	**63.7375**	**0.0000**	**2,671.9359**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	270.94	54.9984	3.2503	0.0000	136.2561
General Light Industry	1507.1	305.9277	18.0798	0.0000	757.9229
General Office Building	510.54	103.6350	6.1247	0.0000	256.7513
Government Office Building	178	36.1324	2.1354	0.0000	89.5165
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2328.06	472.5751	27.9284	0.0000	1,170.7849
Strip Mall	422.72	85.8083	5.0711	0.0000	212.5865
Total		**1,078.4991**	**63.7375**	**0.0000**	**2,671.9359**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

St. Helena GP - Baseline (2018) Operational Emissions

Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,215.40	1000sqft	27.90	1,215,400.00	0
General Office Building	548.97	1000sqft	12.60	548,970.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	402.59	1000sqft	9.24	402,590.00	0
Single Family Housing	1,938.00	Dwelling Unit	629.22	3,488,400.00	5543

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,179,180.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,537,540.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,920,725.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	8,762,175.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	12,400.00	0.00
tblConstructionPhase	NumDays	800.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

tblConstructionPhase	NumDays	1,240.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	480.00	0.00
tblConstructionPhase	PhaseEndDate	8/5/2082	3/22/2079
tblConstructionPhase	PhaseEndDate	11/6/2075	4/26/2028
tblConstructionPhase	PhaseEndDate	9/22/2021	8/29/2018
tblConstructionPhase	PhaseEndDate	4/26/2028	7/26/2023
tblConstructionPhase	PhaseEndDate	3/22/2079	11/6/2075
tblConstructionPhase	PhaseEndDate	7/26/2023	9/22/2021
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	679.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,148.00	0.00
tblTripsAndVMT	WorkerTripNumber	430.00	0.00
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.65
tblVehicleTrips	ST_TR	1.32	0.86
tblVehicleTrips	ST_TR	2.46	1.60
tblVehicleTrips	ST_TR	5.00	3.24
tblVehicleTrips	ST_TR	9.91	6.43
tblVehicleTrips	ST_TR	42.04	27.27
tblVehicleTrips	SU_TR	6.07	3.94
tblVehicleTrips	SU_TR	0.68	0.44
tblVehicleTrips	SU_TR	1.05	0.68
tblVehicleTrips	SU_TR	4.36	2.83
tblVehicleTrips	SU_TR	8.62	5.59
tblVehicleTrips	SU_TR	20.43	13.25
tblVehicleTrips	WD_TR	6.59	4.28

tblVehicleTrips	WD_TR	6.97	4.52
tblVehicleTrips	WD_TR	11.03	7.16
tblVehicleTrips	WD_TR	68.93	44.72
tblVehicleTrips	WD_TR	4.99	3.24
tblVehicleTrips	WD_TR	9.52	6.18
tblVehicleTrips	WD_TR	44.32	28.75
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	77.52	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	77.52	0.00

2.0 Emissions Summary

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Agenda Item #5.1.

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Energy	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
Mobile	116.4478	545.7872	1,232.9674	3.2686	239.5088	4.7755	244.2843	64.1441	4.5192	68.6632		330,159.7638	330,159.7638	14.7077		330,527.4559
Total	**2,572.9869**	**614.7398**	**3,995.8530**	**7.5137**	**239.5088**	**353.4703**	**592.9791**	**64.1441**	**353.2140**	**417.3581**	**33,827.2995**	**381,269.7665**	**415,097.0660**	**16.0836**	**3.9143**	**416,665.6223**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Energy	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
Mobile	116.4478	545.7872	1,232.9674	3.2686	239.5088	4.7755	244.2843	64.1441	4.5192	68.6632		330,159.7638	330,159.7638	14.7077		330,527.4559
Total	**2,572.9869**	**614.7398**	**3,995.8530**	**7.5137**	**239.5088**	**353.4703**	**592.9791**	**64.1441**	**353.2140**	**417.3581**	**33,827.2995**	**381,269.7665**	**415,097.0660**	**16.0836**	**3.9143**	**416,665.6223**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	9/23/2021	9/22/2021	5	0	
3	Grading	Grading	7/27/2023	7/26/2023	5	0	
4	Building Construction	Building Construction	4/27/2028	4/26/2028	5	0	
5	Paving	Paving	11/7/2075	11/6/2075	5	0	
6	Architectural Coating	Architectural Coating	3/23/2079	3/22/2079	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	116.4478	545.7872	1,232.9674	3.2686	239.5088	4.7755	244.2843	64.1441	4.5192	68.6632		330,159.7638	330,159.7638	14.7077		330,527.4559
Unmitigated	116.4478	545.7872	1,232.9674	3.2686	239.5088	4.7755	244.2843	64.1441	4.5192	68.6632		330,159.7638	330,159.7638	14.7077		330,527.4559

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,520.92	2,738.85	2320.66	6,246,029	6,246,029
General Light Industry	5,493.61	1,045.24	534.78	10,271,394	10,271,394
General Office Building	3,930.63	878.35	373.30	7,391,929	7,391,929
Government Office Building	8,559.41	0.00	0.00	15,133,033	15,133,033
Mobile Home Park	673.92	673.92	588.64	1,637,932	1,637,932
Single Family Housing	11,976.84	12,461.34	10833.42	29,412,080	29,412,080
Strip Mall	11,574.46	10,978.63	5334.32	26,231,908	26,231,908
Total	44,729.78	28,776.34	19,985.11	96,324,306	96,324,306

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
NaturalGas Unmitigated	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16457.9	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	87841.8	0.9473	8.6119	7.2340	0.0517		0.6545	0.6545		0.6545	0.6545		10,334.3278	10,334.3278	0.1981	0.1895	10,395.7395
General Office Building	24620.9	0.2655	2.4138	2.0276	0.0145		0.1835	0.1835		0.1835	0.1835		2,896.5798	2,896.5798	0.0555	0.0531	2,913.7928
Government Office Building	8584.16	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	154324	1.6643	14.2220	6.0519	0.0908		1.1499	1.1499		1.1499	1.1499		18,155.7275	18,155.7275	0.3480	0.3329	18,263.6179
Strip Mall	2614.08	0.0282	0.2563	0.2153	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5385	307.5385	5.8900e-003	5.6400e-003	309.3661
Total		**3.2798**	**28.7548**	**17.2609**	**0.1789**		**2.2661**	**2.2661**		**2.2661**	**2.2661**		**35,779.6077**	**35,779.6077**	**0.6858**	**0.6560**	**35,992.2280**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16.4579	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	87.8418	0.9473	8.6119	7.2340	0.0517		0.6545	0.6545		0.6545	0.6545		10,334.3278	10,334.3278	0.1981	0.1895	10,395.7395
General Office Building	24.6209	0.2655	2.4138	2.0276	0.0145		0.1835	0.1835		0.1835	0.1835		2,896.5798	2,896.5798	0.0555	0.0531	2,913.7928
Government Office Building	8.58416	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	154.324	1.6643	14.2220	6.0519	0.0908		1.1499	1.1499		1.1499	1.1499		18,155.7275	18,155.7275	0.3480	0.3329	18,263.6179
Strip Mall	2.61408	0.0282	0.2563	0.2153	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5385	307.5385	5.8900e-003	5.6400e-003	309.3661
Total		**3.2798**	**28.7548**	**17.2609**	**0.1789**		**2.2661**	**2.2661**		**2.2661**	**2.2661**		**35,779.6077**	**35,779.6077**	**0.6858**	**0.6560**	**35,992.2280**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Unmitigated	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	23.4284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	143.0667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,279.7361	37.5581	2,518.1439	4.0543		345.1877	345.1877		345.1877	345.1877	33,827.2995	14,923.5882	48,750.8878	0.2860	3.2584	49,729.0302
Landscaping	7.0281	2.6398	227.4808	0.0119		1.2411	1.2411		1.2411	1.2411		406.8067	406.8067	0.4041		416.9082
Total	**2,453.2594**	**40.1979**	**2,745.6247**	**4.0662**		**346.4288**	**346.4288**		**346.4288**	**346.4288**	**33,827.2995**	**15,330.3949**	**49,157.6944**	**0.6901**	**3.2584**	**50,145.9384**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	23.4284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	143.0667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,279.7361	37.5581	2,518.1439	4.0543		345.1877	345.1877		345.1877	345.1877	33,827.2995	14,923.5882	48,750.8878	0.2860	3.2584	49,729.0302
Landscaping	7.0281	2.6398	227.4808	0.0119		1.2411	1.2411		1.2411	1.2411		406.8067	406.8067	0.4041		416.9082
Total	**2,453.2594**	**40.1979**	**2,745.6247**	**4.0662**		**346.4288**	**346.4288**		**346.4288**	**346.4288**	**33,827.2995**	**15,330.3949**	**49,157.6944**	**0.6901**	**3.2584**	**50,145.9384**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

St. Helena GP - Baseline (2018) Operational Emissions

Napa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,215.40	1000sqft	27.90	1,215,400.00	0
General Office Building	548.97	1000sqft	12.60	548,970.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	402.59	1000sqft	9.24	402,590.00	0
Single Family Housing	1,938.00	Dwelling Unit	629.22	3,488,400.00	5543

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,179,180.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,537,540.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,920,725.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	8,762,175.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	12,400.00	0.00
tblConstructionPhase	NumDays	800.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

tblConstructionPhase	NumDays	1,240.00	0.00
tblConstructionPhase	NumDays	880.00	0.00
tblConstructionPhase	NumDays	480.00	0.00
tblConstructionPhase	PhaseEndDate	8/5/2082	3/22/2079
tblConstructionPhase	PhaseEndDate	11/6/2075	4/26/2028
tblConstructionPhase	PhaseEndDate	9/22/2021	8/29/2018
tblConstructionPhase	PhaseEndDate	4/26/2028	7/26/2023
tblConstructionPhase	PhaseEndDate	3/22/2079	11/6/2075
tblConstructionPhase	PhaseEndDate	7/26/2023	9/22/2021
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	679.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,148.00	0.00
tblTripsAndVMT	WorkerTripNumber	430.00	0.00
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TL	7.30	6.80
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TL	10.80	6.80
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.65
tblVehicleTrips	ST_TR	1.32	0.86
tblVehicleTrips	ST_TR	2.46	1.60
tblVehicleTrips	ST_TR	5.00	3.24
tblVehicleTrips	ST_TR	9.91	6.43
tblVehicleTrips	ST_TR	42.04	27.27
tblVehicleTrips	SU_TR	6.07	3.94
tblVehicleTrips	SU_TR	0.68	0.44
tblVehicleTrips	SU_TR	1.05	0.68
tblVehicleTrips	SU_TR	4.36	2.83
tblVehicleTrips	SU_TR	8.62	5.59
tblVehicleTrips	SU_TR	20.43	13.25
tblVehicleTrips	WD_TR	6.59	4.28

tblVehicleTrips	WD_TR	6.97	4.52
tblVehicleTrips	WD_TR	11.03	7.16
tblVehicleTrips	WD_TR	68.93	44.72
tblVehicleTrips	WD_TR	4.99	3.24
tblVehicleTrips	WD_TR	9.52	6.18
tblVehicleTrips	WD_TR	44.32	28.75
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	77.52	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	77.52	0.00

2.0 Emissions Summary

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Energy	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
Mobile	103.9825	580.8856	1,289.6003	3.0791	239.5088	4.8268	244.3356	64.1441	4.5683	68.7124		310,954.9218	310,954.9218	15.1830		311,334.4969
Total	**2,560.5216**	**649.8383**	**4,052.4859**	**7.3242**	**239.5088**	**353.5217**	**593.0304**	**64.1441**	**353.2631**	**417.4072**	**33,827.2995**	**362,064.9245**	**395,892.2240**	**16.5589**	**3.9143**	**397,472.6634**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Energy	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
Mobile	103.9825	580.8856	1,289.6003	3.0791	239.5088	4.8268	244.3356	64.1441	4.5683	68.7124		310,954.9218	310,954.9218	15.1830		311,334.4969
Total	**2,560.5216**	**649.8383**	**4,052.4859**	**7.3242**	**239.5088**	**353.5217**	**593.0304**	**64.1441**	**353.2631**	**417.4072**	**33,827.2995**	**362,064.9245**	**395,892.2240**	**16.5589**	**3.9143**	**397,472.6634**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	9/23/2021	9/22/2021	5	0	
3	Grading	Grading	7/27/2023	7/26/2023	5	0	
4	Building Construction	Building Construction	4/27/2028	4/26/2028	5	0	
5	Paving	Paving	11/7/2075	11/6/2075	5	0	
6	Architectural Coating	Architectural Coating	3/23/2079	3/22/2079	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2075

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2079

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	103.9825	580.8856	1,289.6003	3.0791	239.5088	4.8268	244.3356	64.1441	4.5683	68.7124		310,954.9218	310,954.9218	15.1830		311,334.4969
Unmitigated	103.9825	580.8856	1,289.6003	3.0791	239.5088	4.8268	244.3356	64.1441	4.5683	68.7124		310,954.9218	310,954.9218	15.1830		311,334.4969

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,520.92	2,738.85	2320.66	6,246,029	6,246,029
General Light Industry	5,493.61	1,045.24	534.78	10,271,394	10,271,394
General Office Building	3,930.63	878.35	373.30	7,391,929	7,391,929
Government Office Building	8,559.41	0.00	0.00	15,133,033	15,133,033
Mobile Home Park	673.92	673.92	588.64	1,637,932	1,637,932
Single Family Housing	11,976.84	12,461.34	10833.42	29,412,080	29,412,080
Strip Mall	11,574.46	10,978.63	5334.32	26,231,908	26,231,908
Total	44,729.78	28,776.34	19,985.11	96,324,306	96,324,306

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.80	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.80	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

St. Helena GP - Baseline (2018) Operational Emissions - Napa County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281
NaturalGas Unmitigated	3.2798	28.7548	17.2609	0.1789		2.2660	2.2660		2.2660	2.2660		35,779.6077	35,779.6077	0.6858	0.6560	35,992.2281

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16457.9	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	87841.8	0.9473	8.6119	7.2340	0.0517		0.6545	0.6545		0.6545	0.6545		10,334.3278	10,334.3278	0.1981	0.1895	10,395.7395
General Office Building	24620.9	0.2655	2.4138	2.0276	0.0145		0.1835	0.1835		0.1835	0.1835		2,896.5798	2,896.5798	0.0555	0.0531	2,913.7928
Government Office Building	8584.16	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	154324	1.6643	14.2220	6.0519	0.0908		1.1499	1.1499		1.1499	1.1499		18,155.7275	18,155.7275	0.3480	0.3329	18,263.6179
Strip Mall	2614.08	0.0282	0.2563	0.2153	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5385	307.5385	5.8900e-003	5.6400e-003	309.3661
Total		**3.2798**	**28.7548**	**17.2609**	**0.1789**		**2.2661**	**2.2661**		**2.2661**	**2.2661**		**35,779.6077**	**35,779.6077**	**0.6858**	**0.6560**	**35,992.2280**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16.4579	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	87.8418	0.9473	8.6119	7.2340	0.0517		0.6545	0.6545		0.6545	0.6545		10,334.3278	10,334.3278	0.1981	0.1895	10,395.7395
General Office Building	24.6209	0.2655	2.4138	2.0276	0.0145		0.1835	0.1835		0.1835	0.1835		2,896.5798	2,896.5798	0.0555	0.0531	2,913.7928
Government Office Building	8.58416	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	154.324	1.6643	14.2220	6.0519	0.0908		1.1499	1.1499		1.1499	1.1499		18,155.7275	18,155.7275	0.3480	0.3329	18,263.6179
Strip Mall	2.61408	0.0282	0.2563	0.2153	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5385	307.5385	5.8900e-003	5.6400e-003	309.3661
Total		**3.2798**	**28.7548**	**17.2609**	**0.1789**		**2.2661**	**2.2661**		**2.2661**	**2.2661**		**35,779.6077**	**35,779.6077**	**0.6858**	**0.6560**	**35,992.2280**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384
Unmitigated	2,453.2594	40.1979	2,745.6247	4.0662		346.4288	346.4288		346.4288	346.4288	33,827.2995	15,330.3949	49,157.6944	0.6901	3.2584	50,145.9384

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	23.4284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	143.0667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,279.7361	37.5581	2,518.1439	4.0543		345.1877	345.1877		345.1877	345.1877	33,827.2995	14,923.5882	48,750.8878	0.2860	3.2584	49,729.0302
Landscaping	7.0281	2.6398	227.4808	0.0119		1.2411	1.2411		1.2411	1.2411		406.8067	406.8067	0.4041		416.9082
Total	**2,453.2594**	**40.1979**	**2,745.6247**	**4.0662**		**346.4288**	**346.4288**		**346.4288**	**346.4288**	**33,827.2995**	**15,330.3949**	**49,157.6944**	**0.6901**	**3.2584**	**50,145.9384**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	23.4284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	143.0667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,279.7361	37.5581	2,518.1439	4.0543		345.1877	345.1877		345.1877	345.1877	33,827.2995	14,923.5882	48,750.8878	0.2860	3.2584	49,729.0302
Landscaping	7.0281	2.6398	227.4808	0.0119		1.2411	1.2411		1.2411	1.2411		406.8067	406.8067	0.4041		416.9082
Total	**2,453.2594**	**40.1979**	**2,745.6247**	**4.0662**		**346.4288**	**346.4288**		**346.4288**	**346.4288**	**33,827.2995**	**15,330.3949**	**49,157.6944**	**0.6901**	**3.2584**	**50,145.9384**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

St. Helena GP - 2040 Buildout

Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,326.32	1000sqft	30.45	1,326,320.00	0
General Office Building	644.09	1000sqft	14.79	644,090.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	536.13	1000sqft	12.31	536,130.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,369,125.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,107,375.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/2/2090	10/16/2086
tblConstructionPhase	PhaseEndDate	12/30/2082	7/11/2029
tblConstructionPhase	PhaseEndDate	2/9/2022	8/29/2018
tblConstructionPhase	PhaseEndDate	7/11/2029	3/6/2024
tblConstructionPhase	PhaseEndDate	10/16/2086	12/30/2082
tblConstructionPhase	PhaseEndDate	3/6/2024	2/9/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	777.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,461.00	0.00
tblTripsAndVMT	WorkerTripNumber	492.00	0.00
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.87
tblVehicleTrips	ST_TR	1.32	0.90
tblVehicleTrips	ST_TR	2.46	1.67
tblVehicleTrips	ST_TR	5.00	3.40
tblVehicleTrips	ST_TR	9.91	6.74
tblVehicleTrips	ST_TR	42.04	28.61
tblVehicleTrips	SU_TR	6.07	4.13
tblVehicleTrips	SU_TR	0.68	0.46
tblVehicleTrips	SU_TR	1.05	0.71
tblVehicleTrips	SU_TR	4.36	2.97
tblVehicleTrips	SU_TR	8.62	5.87
tblVehicleTrips	SU_TR	20.43	13.90

tblVehicleTrips	WD_TR	6.59	4.48
tblVehicleTrips	WD_TR	6.97	4.74
tblVehicleTrips	WD_TR	11.03	7.51
tblVehicleTrips	WD_TR	68.93	46.90
tblVehicleTrips	WD_TR	4.99	3.40
tblVehicleTrips	WD_TR	9.52	6.48
tblVehicleTrips	WD_TR	44.32	30.16
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	48.8723	0.4930	38.1547	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9090	309.2737	0.0371	0.0182	315.6121
Energy	0.6628	5.8131	3.5016	0.0362		0.4580	0.4580		0.4580	0.4580	0.0000	10,555.3138	10,555.3138	0.8322	0.2664	10,655.5188
Mobile	5.3943	44.8426	64.8211	0.3727	42.7502	0.1555	42.9057	11.4591	0.1451	11.6042	0.0000	34,656.9904	34,656.9904	1.2681	0.0000	34,688.6930
Waste						0.0000	0.0000		0.0000	0.0000	1,215.9585	0.0000	1,215.9585	71.8611	0.0000	3,012.4857
Water						0.0000	0.0000		0.0000	0.0000	224.2221	349.2350	573.4571	23.0915	0.5566	1,316.5999
Total	**54.9295**	**51.1486**	**106.4774**	**0.4349**	**42.7502**	**2.8587**	**45.6089**	**11.4591**	**2.8483**	**14.3074**	**1,628.5454**	**45,682.4481**	**47,310.9935**	**97.0901**	**0.8412**	**49,988.9094**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	48.8723	0.4930	38.1547	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9090	309.2737	0.0371	0.0182	315.6121
Energy	0.6628	5.8131	3.5016	0.0362		0.4580	0.4580		0.4580	0.4580	0.0000	10,555.3138	10,555.3138	0.8322	0.2664	10,655.5188
Mobile	5.3943	44.8426	64.8211	0.3727	42.7502	0.1555	42.9057	11.4591	0.1451	11.6042	0.0000	34,656.9904	34,656.9904	1.2681	0.0000	34,688.6930
Waste						0.0000	0.0000		0.0000	0.0000	1,215.9585	0.0000	1,215.9585	71.8611	0.0000	3,012.4857
Water						0.0000	0.0000		0.0000	0.0000	224.2221	349.2350	573.4571	23.0915	0.5566	1,316.5999
Total	**54.9295**	**51.1486**	**106.4774**	**0.4349**	**42.7502**	**2.8587**	**45.6089**	**11.4591**	**2.8483**	**14.3074**	**1,628.5454**	**45,682.4481**	**47,310.9935**	**97.0901**	**0.8412**	**49,988.9094**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

St. Helena GP - 2040 Buildout - Napa County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	2/10/2022	2/9/2022	5	0	
3	Grading	Grading	3/7/2024	3/6/2024	5	0	
4	Building Construction	Building Construction	7/12/2029	7/11/2029	5	0	
5	Paving	Paving	12/31/2082	12/30/2082	5	0	
6	Architectural Coating	Architectural Coating	10/17/2086	10/16/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - 2040 Buildout - Napa County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.3943	44.8426	64.8211	0.3727	42.7502	0.1555	42.9057	11.4591	0.1451	11.6042	0.0000	34,656.9904	34,656.9904	1.2681	0.0000	34,688.6930
Unmitigated	5.3943	44.8426	64.8211	0.3727	42.7502	0.1555	42.9057	11.4591	0.1451	11.6042	0.0000	34,656.9904	34,656.9904	1.2681	0.0000	34,688.6930

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,395.84	3,691.46	3130.54	8,044,806	8,044,806
General Light Industry	6,286.76	1,193.69	610.11	11,234,302	11,234,302
General Office Building	4,837.12	1,075.63	457.30	8,692,858	8,692,858
Government Office Building	10,867.20	0.00	0.00	18,365,566	18,365,566
Mobile Home Park	707.20	707.20	617.76	1,643,004	1,643,004
Single Family Housing	13,614.48	14,160.74	12332.87	31,963,311	31,963,311
Strip Mall	16,169.68	15,338.68	7452.21	35,030,080	35,030,080
Total	55,878.27	36,167.40	24,600.79	114,973,927	114,973,927

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

St. Helena GP - 2040 Buildout - Napa County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,995.4611	3,995.4611	0.7065	0.1462	4,056.6842
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,995.4611	3,995.4611	0.7065	0.1462	4,056.6842
NaturalGas Mitigated	0.6628	5.8131	3.5016	0.0362		0.4580	0.4580		0.4580	0.4580	0.0000	6,559.8527	6,559.8527	0.1257	0.1203	6,598.8346
NaturalGas Unmitigated	0.6628	5.8131	3.5016	0.0362		0.4580	0.4580		0.4580	0.4580	0.0000	6,559.8527	6,559.8527	0.1257	0.1203	6,598.8346

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.73073e+006	0.0417	0.3562	0.1516	2.2700e-003		0.0288	0.0288		0.0288	0.0288	0.0000	412.5411	412.5411	7.9100e-003	7.5600e-003	414.9926
General Light Industry	3.49883e+007	0.1887	1.7151	1.4407	0.0103		0.1304	0.1304		0.1304	0.1304	0.0000	1,867.1101	1,867.1101	0.0358	0.0342	1,878.2054
General Office Building	1.05438e+007	0.0569	0.5169	0.4342	3.1000e-003		0.0393	0.0393		0.0393	0.0393	0.0000	562.6548	562.6548	0.0108	0.0103	565.9984
Government Office Building	3.79309e+006	0.0205	0.1859	0.1562	1.1200e-003		0.0141	0.0141		0.0141	0.0141	0.0000	202.4139	202.4139	3.8800e-003	3.7100e-003	203.6167
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.10658e+007	0.3293	2.8138	1.1974	0.0180		0.2275	0.2275		0.2275	0.2275	0.0000	3,258.7012	3,258.7012	0.0625	0.0597	3,278.0660
Strip Mall	1.27063e+006	6.8500e-003	0.0623	0.0523	3.7000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	67.8056	67.8056	1.3000e-003	1.2400e-003	68.2085
Total		**0.6628**	**5.8131**	**3.5016**	**0.0362**		**0.4580**	**0.4580**		**0.4580**	**0.4580**	**0.0000**	**6,559.8527**	**6,559.8527**	**0.1257**	**0.1203**	**6,598.8346**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.73073e+006	0.0417	0.3562	0.1516	2.2700e-003		0.0288	0.0288		0.0288	0.0288	0.0000	412.5411	412.5411	7.9100e-003	7.5600e-003	414.9926
General Light Industry	3.49883e+007	0.1887	1.7151	1.4407	0.0103		0.1304	0.1304		0.1304	0.1304	0.0000	1,867.1101	1,867.1101	0.0358	0.0342	1,878.2054
General Office Building	1.05438e+007	0.0569	0.5169	0.4342	3.1000e-003		0.0393	0.0393		0.0393	0.0393	0.0000	562.6548	562.6548	0.0108	0.0103	565.9984
Government Office Building	3.79309e+006	0.0205	0.1859	0.1562	1.1200e-003		0.0141	0.0141		0.0141	0.0141	0.0000	202.4139	202.4139	3.8800e-003	3.7100e-003	203.6167
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.10658e+007	0.3293	2.8138	1.1974	0.0180		0.2275	0.2275		0.2275	0.2275	0.0000	3,258.7012	3,258.7012	0.0625	0.0597	3,278.0660
Strip Mall	1.27063e+006	6.8500e-003	0.0623	0.0523	3.7000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	67.8056	67.8056	1.3000e-003	1.2400e-003	68.2085
Total		**0.6628**	**5.8131**	**3.5016**	**0.0362**		**0.4580**	**0.4580**		**0.4580**	**0.4580**	**0.0000**	**6,559.8527**	**6,559.8527**	**0.1257**	**0.1203**	**6,598.8346**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.29639e+006	245.2157	0.0434	8.9700e-003	248.9732
General Light Industry	1.09554e+007	814.9631	0.1441	0.0298	827.4509
General Office Building	1.14841e+007	854.2943	0.1511	0.0313	867.3848
Government Office Building	4.13139e+006	307.3305	0.0544	0.0112	312.0398
Mobile Home Park	1.11344e+006	82.8281	0.0147	3.0300e-003	84.0972
Single Family Housing	1.69983e+007	1,264.4881	0.2236	0.0463	1,283.8641
Strip Mall	5.73123e+006	426.3413	0.0754	0.0156	432.8742
Total		**3,995.4611**	**0.7065**	**0.1462**	**4,056.6842**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.29639e+006	245.2157	0.0434	8.9700e-003	248.9732
General Light Industry	1.09554e+007	814.9631	0.1441	0.0298	827.4509
General Office Building	1.14841e+007	854.2943	0.1511	0.0313	867.3848
Government Office Building	4.13139e+006	307.3305	0.0544	0.0112	312.0398
Mobile Home Park	1.11344e+006	82.8281	0.0147	3.0300e-003	84.0972
Single Family Housing	1.69983e+007	1,264.4881	0.2236	0.0463	1,283.8641
Strip Mall	5.73123e+006	426.3413	0.0754	0.0156	432.8742
Total		**3,995.4611**	**0.7065**	**0.1462**	**4,056.6842**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	48.8723	0.4930	38.1547	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9090	309.2737	0.0371	0.0182	315.6121
Unmitigated	48.8723	0.4930	38.1547	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9090	309.2737	0.0371	0.0182	315.6121

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.7993					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	29.3992					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.9934	0.2310	15.4569	0.0249		2.1189	2.1189		2.1189	2.1189	188.3647	83.6611	272.0258	1.6000e-003	0.0182	277.4758
Landscaping	0.6804	0.2619	22.6978	1.2000e-003		0.1264	0.1264		0.1264	0.1264	0.0000	37.2479	37.2479	0.0355	0.0000	38.1363
Total	**48.8723**	**0.4930**	**38.1547**	**0.0261**		**2.2452**	**2.2452**		**2.2452**	**2.2452**	**188.3647**	**120.9090**	**309.2737**	**0.0371**	**0.0182**	**315.6121**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.7993					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	29.3992					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.9934	0.2310	15.4569	0.0249		2.1189	2.1189		2.1189	2.1189	188.3647	83.6611	272.0258	1.6000e-003	0.0182	277.4758
Landscaping	0.6804	0.2619	22.6978	1.2000e-003		0.1264	0.1264		0.1264	0.1264	0.0000	37.2479	37.2479	0.0355	0.0000	38.1363
Total	**48.8723**	**0.4930**	**38.1547**	**0.0261**		**2.2452**	**2.2452**		**2.2452**	**2.2452**	**188.3647**	**120.9090**	**309.2737**	**0.0371**	**0.0182**	**315.6121**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	573.4571	23.0915	0.5566	1,316.5999
Unmitigated	573.4571	23.0915	0.5566	1,316.5999

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	49.3868 / 31.1351	43.6537	1.6142	0.0390	95.6377
General Light Industry	306.712 / 0	220.7628	10.0160	0.2405	542.8330
General Office Building	114.477 / 70.163	100.6650	3.7416	0.0904	221.1539
Government Office Building	46.0314 / 28.2128	40.4778	1.5045	0.0364	88.9268
Mobile Home Park	13.552 / 8.54368	11.9789	0.4430	0.0107	26.2436
Single Family Housing	136.889 / 86.2993	120.9979	4.4742	0.1082	265.0855
Strip Mall	39.7125 / 24.3399	34.9212	1.2980	0.0314	76.7194
Total		**573.4572**	**23.0915**	**0.5566**	**1,316.5999**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	49.3868 / 31.1351	43.6537	1.6142	0.0390	95.6377
General Light Industry	306.712 / 0	220.7628	10.0160	0.2405	542.8330
General Office Building	114.477 / 70.163	100.6650	3.7416	0.0904	221.1539
Government Office Building	46.0314 / 28.2128	40.4778	1.5045	0.0364	88.9268
Mobile Home Park	13.552 / 8.54368	11.9789	0.4430	0.0107	26.2436
Single Family Housing	136.889 / 86.2993	120.9979	4.4742	0.1082	265.0855
Strip Mall	39.7125 / 24.3399	34.9212	1.2980	0.0314	76.7194
Total		**573.4572**	**23.0915**	**0.5566**	**1,316.5999**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,215.9585	71.8611	0.0000	3,012.4857
Unmitigated	1,215.9585	71.8611	0.0000	3,012.4857

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	348.68	70.7789	4.1829	0.0000	175.3517
General Light Industry	1644.64	333.8471	19.7298	0.0000	827.0920
General Office Building	599	121.5916	7.1859	0.0000	301.2380
Government Office Building	215.49	43.7425	2.5851	0.0000	108.3703
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2523.78	512.3045	30.2763	0.0000	1,269.2128
Strip Mall	562.94	114.2717	6.7533	0.0000	283.1034
Total		**1,215.9585**	**71.8611**	**0.0000**	**3,012.4857**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	348.68	70.7789	4.1829	0.0000	175.3517
General Light Industry	1644.64	333.8471	19.7298	0.0000	827.0920
General Office Building	599	121.5916	7.1859	0.0000	301.2380
Government Office Building	215.49	43.7425	2.5851	0.0000	108.3703
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2523.78	512.3045	30.2763	0.0000	1,269.2128
Strip Mall	562.94	114.2717	6.7533	0.0000	283.1034
Total		**1,215.9585**	**71.8611**	**0.0000**	**3,012.4857**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

St. Helena GP - 2040 Buildout

Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,326.32	1000sqft	30.45	1,326,320.00	0
General Office Building	644.09	1000sqft	14.79	644,090.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	536.13	1000sqft	12.31	536,130.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,369,125.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,107,375.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/2/2090	10/16/2086
tblConstructionPhase	PhaseEndDate	12/30/2082	7/11/2029
tblConstructionPhase	PhaseEndDate	2/9/2022	8/29/2018
tblConstructionPhase	PhaseEndDate	7/11/2029	3/6/2024
tblConstructionPhase	PhaseEndDate	10/16/2086	12/30/2082
tblConstructionPhase	PhaseEndDate	3/6/2024	2/9/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	777.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,461.00	0.00
tblTripsAndVMT	WorkerTripNumber	492.00	0.00
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.87
tblVehicleTrips	ST_TR	1.32	0.90
tblVehicleTrips	ST_TR	2.46	1.67
tblVehicleTrips	ST_TR	5.00	3.40
tblVehicleTrips	ST_TR	9.91	6.74
tblVehicleTrips	ST_TR	42.04	28.61
tblVehicleTrips	SU_TR	6.07	4.13
tblVehicleTrips	SU_TR	0.68	0.46
tblVehicleTrips	SU_TR	1.05	0.71
tblVehicleTrips	SU_TR	4.36	2.97
tblVehicleTrips	SU_TR	8.62	5.87
tblVehicleTrips	SU_TR	20.43	13.90

tblVehicleTrips	WD_TR	6.59	4.48
tblVehicleTrips	WD_TR	6.97	4.74
tblVehicleTrips	WD_TR	11.03	7.51
tblVehicleTrips	WD_TR	68.93	46.90
tblVehicleTrips	WD_TR	4.99	3.40
tblVehicleTrips	WD_TR	9.52	6.48
tblVehicleTrips	WD_TR	44.32	30.16
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Energy	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
Mobile	39.3936	284.0328	432.9769	2.5045	284.8532	0.9968	285.8500	76.1127	0.9302	77.0429		256,555.5275	256,555.5275	8.8055		256,775.6657
Total	**2,750.2527**	**360.2715**	**3,479.3913**	**7.1844**	**284.8532**	**385.3140**	**670.1672**	**76.1127**	**385.2474**	**461.3601**	**37,277.6610**	**313,190.3005**	**350,467.9616**	**10.3175**	**4.3191**	**352,013.0043**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Energy	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
Mobile	39.3936	284.0328	432.9769	2.5045	284.8532	0.9968	285.8500	76.1127	0.9302	77.0429		256,555.5275	256,555.5275	8.8055		256,775.6657
Total	**2,750.2527**	**360.2715**	**3,479.3913**	**7.1844**	**284.8532**	**385.3140**	**670.1672**	**76.1127**	**385.2474**	**461.3601**	**37,277.6610**	**313,190.3005**	**350,467.9616**	**10.3175**	**4.3191**	**352,013.0043**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	2/10/2022	2/9/2022	5	0	
3	Grading	Grading	3/7/2024	3/6/2024	5	0	
4	Building Construction	Building Construction	7/12/2029	7/11/2029	5	0	
5	Paving	Paving	12/31/2082	12/30/2082	5	0	
6	Architectural Coating	Architectural Coating	10/17/2086	10/16/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - 2040 Buildout - Napa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	39.3936	284.0328	432.9769	2.5045	284.8532	0.9968	285.8500	76.1127	0.9302	77.0429		256,555.5275	256,555.5275	8.8055		256,775.6657
Unmitigated	39.3936	284.0328	432.9769	2.5045	284.8532	0.9968	285.8500	76.1127	0.9302	77.0429		256,555.5275	256,555.5275	8.8055		256,775.6657

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,395.84	3,691.46	3130.54	8,044,806	8,044,806
General Light Industry	6,286.76	1,193.69	610.11	11,234,302	11,234,302
General Office Building	4,837.12	1,075.63	457.30	8,692,858	8,692,858
Government Office Building	10,867.20	0.00	0.00	18,365,566	18,365,566
Mobile Home Park	707.20	707.20	617.76	1,643,004	1,643,004
Single Family Housing	13,614.48	14,160.74	12332.87	31,963,311	31,963,311
Strip Mall	16,169.68	15,338.68	7452.21	35,030,080	35,030,080
Total	55,878.27	36,167.40	24,600.79	114,973,927	114,973,927

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
NaturalGas Unmitigated	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21180.1	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	95858.4	1.0338	9.3979	7.8942	0.0564		0.7142	0.7142		0.7142	0.7142		11,277.4606	11,277.4606	0.2162	0.2068	11,344.4769
General Office Building	28887	0.3115	2.8321	2.3789	0.0170		0.2152	0.2152		0.2152	0.2152		3,398.4700	3,398.4700	0.0651	0.0623	3,418.6655
Government Office Building	10392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	3481.17	0.0375	0.3413	0.2867	2.0500e-003		0.0259	0.0259		0.0259	0.0259		409.5498	409.5498	7.8500e-003	7.5100e-003	411.9835
Total		**3.6320**	**31.8526**	**19.1869**	**0.1981**		**2.5094**	**2.5094**		**2.5094**	**2.5094**		**39,621.9168**	**39,621.9168**	**0.7594**	**0.7264**	**39,857.3700**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21.1801	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	95.8584	1.0338	9.3979	7.8942	0.0564		0.7142	0.7142		0.7142	0.7142		11,277.4606	11,277.4606	0.2162	0.2068	11,344.4769
General Office Building	28.887	0.3115	2.8321	2.3789	0.0170		0.2152	0.2152		0.2152	0.2152		3,398.4700	3,398.4700	0.0651	0.0623	3,418.6655
Government Office Building	10.392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	3.48117	0.0375	0.3413	0.2867	2.0500e-003		0.0259	0.0259		0.0259	0.0259		409.5498	409.5498	7.8500e-003	7.5100e-003	411.9835
Total		**3.6320**	**31.8526**	**19.1869**	**0.1981**		**2.5094**	**2.5094**		**2.5094**	**2.5094**		**39,621.9168**	**39,621.9168**	**0.7594**	**0.7264**	**39,857.3700**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Unmitigated	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	26.2974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	161.0917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5601	2.9103	252.1976	0.0134		1.4042	1.4042		1.4042	1.4042		456.2092	456.2092	0.4352		467.0894
Total	**2,707.2271**	**44.3861**	**3,027.2274**	**4.4818**		**381.8078**	**381.8078**		**381.8078**	**381.8078**	**37,277.6610**	**17,012.8562**	**54,290.5173**	**0.7526**	**3.5927**	**55,379.9686**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	26.2974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	161.0917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5601	2.9103	252.1976	0.0134		1.4042	1.4042		1.4042	1.4042		456.2092	456.2092	0.4352		467.0894
Total	**2,707.2271**	**44.3861**	**3,027.2274**	**4.4818**		**381.8078**	**381.8078**		**381.8078**	**381.8078**	**37,277.6610**	**17,012.8562**	**54,290.5173**	**0.7526**	**3.5927**	**55,379.9686**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

St. Helena GP - 2040 Buildout

Napa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,326.32	1000sqft	30.45	1,326,320.00	0
General Office Building	644.09	1000sqft	14.79	644,090.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	536.13	1000sqft	12.31	536,130.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,369,125.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,107,375.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/2/2090	10/16/2086
tblConstructionPhase	PhaseEndDate	12/30/2082	7/11/2029
tblConstructionPhase	PhaseEndDate	2/9/2022	8/29/2018
tblConstructionPhase	PhaseEndDate	7/11/2029	3/6/2024
tblConstructionPhase	PhaseEndDate	10/16/2086	12/30/2082
tblConstructionPhase	PhaseEndDate	3/6/2024	2/9/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	777.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,461.00	0.00
tblTripsAndVMT	WorkerTripNumber	492.00	0.00
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TL	7.30	6.50
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TL	10.80	6.50
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	4.87
tblVehicleTrips	ST_TR	1.32	0.90
tblVehicleTrips	ST_TR	2.46	1.67
tblVehicleTrips	ST_TR	5.00	3.40
tblVehicleTrips	ST_TR	9.91	6.74
tblVehicleTrips	ST_TR	42.04	28.61
tblVehicleTrips	SU_TR	6.07	4.13
tblVehicleTrips	SU_TR	0.68	0.46
tblVehicleTrips	SU_TR	1.05	0.71
tblVehicleTrips	SU_TR	4.36	2.97
tblVehicleTrips	SU_TR	8.62	5.87
tblVehicleTrips	SU_TR	20.43	13.90

tblVehicleTrips	WD_TR	6.59	4.48
tblVehicleTrips	WD_TR	6.97	4.74
tblVehicleTrips	WD_TR	11.03	7.51
tblVehicleTrips	WD_TR	68.93	46.90
tblVehicleTrips	WD_TR	4.99	3.40
tblVehicleTrips	WD_TR	9.52	6.48
tblVehicleTrips	WD_TR	44.32	30.16
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Energy	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
Mobile	33.7643	289.1848	436.8966	2.3615	284.8532	1.0007	285.8539	76.1127	0.9339	77.0466		242,020.7709	242,020.7709	9.3202		242,253.7752
Total	**2,744.6234**	**365.4235**	**3,483.3110**	**7.0413**	**284.8532**	**385.3178**	**670.1710**	**76.1127**	**385.2510**	**461.3637**	**37,277.6610**	**298,655.5440**	**335,933.2050**	**10.8321**	**4.3191**	**337,491.1138**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Energy	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
Mobile	33.7643	289.1848	436.8966	2.3615	284.8532	1.0007	285.8539	76.1127	0.9339	77.0466		242,020.7709	242,020.7709	9.3202		242,253.7752
Total	**2,744.6234**	**365.4235**	**3,483.3110**	**7.0413**	**284.8532**	**385.3178**	**670.1710**	**76.1127**	**385.2510**	**461.3637**	**37,277.6610**	**298,655.5440**	**335,933.2050**	**10.8321**	**4.3191**	**337,491.1138**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/30/2018	8/29/2018	5	0	
2	Site Preparation	Site Preparation	2/10/2022	2/9/2022	5	0	
3	Grading	Grading	3/7/2024	3/6/2024	5	0	
4	Building Construction	Building Construction	7/12/2029	7/11/2029	5	0	
5	Paving	Paving	12/31/2082	12/30/2082	5	0	
6	Architectural Coating	Architectural Coating	10/17/2086	10/16/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

St. Helena GP - 2040 Buildout - Napa County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2082

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	33.7643	289.1848	436.8966	2.3615	284.8532	1.0007	285.8539	76.1127	0.9339	77.0466		242,020.7709	242,020.7709	9.3202		242,253.7752
Unmitigated	33.7643	289.1848	436.8966	2.3615	284.8532	1.0007	285.8539	76.1127	0.9339	77.0466		242,020.7709	242,020.7709	9.3202		242,253.7752

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,395.84	3,691.46	3130.54	8,044,806	8,044,806
General Light Industry	6,286.76	1,193.69	610.11	11,234,302	11,234,302
General Office Building	4,837.12	1,075.63	457.30	8,692,858	8,692,858
Government Office Building	10,867.20	0.00	0.00	18,365,566	18,365,566
Mobile Home Park	707.20	707.20	617.76	1,643,004	1,643,004
Single Family Housing	13,614.48	14,160.74	12332.87	31,963,311	31,963,311
Strip Mall	16,169.68	15,338.68	7452.21	35,030,080	35,030,080
Total	55,878.27	36,167.40	24,600.79	114,973,927	114,973,927

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	6.50	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	6.50	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700
NaturalGas Unmitigated	3.6320	31.8526	19.1869	0.1981		2.5094	2.5094		2.5094	2.5094		39,621.9168	39,621.9168	0.7594	0.7264	39,857.3700

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21180.1	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	95858.4	1.0338	9.3979	7.8942	0.0564		0.7142	0.7142		0.7142	0.7142		11,277.4606	11,277.4606	0.2162	0.2068	11,344.4769
General Office Building	28887	0.3115	2.8321	2.3789	0.0170		0.2152	0.2152		0.2152	0.2152		3,398.4700	3,398.4700	0.0651	0.0623	3,418.6655
Government Office Building	10392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	3481.17	0.0375	0.3413	0.2867	2.0500e-003		0.0259	0.0259		0.0259	0.0259		409.5498	409.5498	7.8500e-003	7.5100e-003	411.9835
Total		**3.6320**	**31.8526**	**19.1869**	**0.1981**		**2.5094**	**2.5094**		**2.5094**	**2.5094**		**39,621.9168**	**39,621.9168**	**0.7594**	**0.7264**	**39,857.3700**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
Apartments Low Rise	21.1801	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	95.8584	1.0338	9.3979	7.8942	0.0564		0.7142	0.7142		0.7142	0.7142		11,277.4606	11,277.4606	0.2162	0.2068	11,344.4769
General Office Building	28.887	0.3115	2.8321	2.3789	0.0170		0.2152	0.2152		0.2152	0.2152		3,398.4700	3,398.4700	0.0651	0.0623	3,418.6655
Government Office Building	10.392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	3.48117	0.0375	0.3413	0.2867	2.0500e-003		0.0259	0.0259		0.0259	0.0259		409.5498	409.5498	7.8500e-003	7.5100e-003	411.9835
Total		**3.6320**	**31.8526**	**19.1869**	**0.1981**		**2.5094**	**2.5094**		**2.5094**	**2.5094**		**39,621.9168**	**39,621.9168**	**0.7594**	**0.7264**	**39,857.3700**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686
Unmitigated	2,707.2271	44.3861	3,027.2274	4.4818		381.8078	381.8078		381.8078	381.8078	37,277.6610	17,012.8562	54,290.5173	0.7526	3.5927	55,379.9686

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	26.2974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	161.0917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5601	2.9103	252.1976	0.0134		1.4042	1.4042		1.4042	1.4042		456.2092	456.2092	0.4352		467.0894
Total	**2,707.2271**	**44.3861**	**3,027.2274**	**4.4818**		**381.8078**	**381.8078**		**381.8078**	**381.8078**	**37,277.6610**	**17,012.8562**	**54,290.5173**	**0.7526**	**3.5927**	**55,379.9686**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	26.2974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	161.0917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5601	2.9103	252.1976	0.0134		1.4042	1.4042		1.4042	1.4042		456.2092	456.2092	0.4352		467.0894
Total	**2,707.2271**	**44.3861**	**3,027.2274**	**4.4818**		**381.8078**	**381.8078**		**381.8078**	**381.8078**	**37,277.6610**	**17,012.8562**	**54,290.5173**	**0.7526**	**3.5927**	**55,379.9686**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaGPPlanningArea

Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,312.16	1000sqft	30.12	1,312,160.00	0
General Office Building	579.42	1000sqft	13.30	579,420.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	509.82	1000sqft	11.70	509,816.00	0
Single Family Housing	2,106.00	Dwelling Unit	683.77	3,790,800.00	6023

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,296,398.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,889,194.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,124,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,374,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblLandUse	LandUseSquareFeet	509,820.00	509,816.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	735.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,293.00	0.00
tblTripsAndVMT	WorkerTripNumber	459.00	0.00
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00

tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	5.39
tblVehicleTrips	ST_TR	1.32	0.99
tblVehicleTrips	ST_TR	2.46	1.85
tblVehicleTrips	ST_TR	5.00	3.76
tblVehicleTrips	ST_TR	9.91	7.46
tblVehicleTrips	ST_TR	42.04	31.65
tblVehicleTrips	SU_TR	6.07	4.57
tblVehicleTrips	SU_TR	0.68	0.51
tblVehicleTrips	SU_TR	1.05	0.79
tblVehicleTrips	SU_TR	4.36	3.28
tblVehicleTrips	SU_TR	8.62	6.49

tblVehicleTrips	SU_TR	20.43	15.38
tblVehicleTrips	WD_TR	6.59	4.96
tblVehicleTrips	WD_TR	6.97	5.25
tblVehicleTrips	WD_TR	11.03	8.30
tblVehicleTrips	WD_TR	68.93	51.89
tblVehicleTrips	WD_TR	4.99	3.76
tblVehicleTrips	WD_TR	9.52	7.17
tblVehicleTrips	WD_TR	44.32	33.36
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.24	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.24	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	47.1335	0.4767	36.8035	0.0254		2.1846	2.1846		2.1846	2.1846	183.6752	115.9086	299.5839	0.0366	0.0177	305.7683
Energy	0.6427	5.6348	3.3820	0.0351		0.4441	0.4441		0.4441	0.4441	0.0000	13,726.3803	13,726.3803	0.7894	0.2547	13,822.0224
Mobile	21.6291	120.3538	258.1929	0.6763	50.4542	1.0412	51.4954	13.5562	0.9854	14.5416	0.0000	61,996.6647	61,996.6647	2.8376	0.0000	62,067.6054
Waste						0.0000	0.0000		0.0000	0.0000	1,172.3804	0.0000	1,172.3804	69.2857	0.0000	2,904.5228
Water						0.0000	0.0000		0.0000	0.0000	212.9880	643.5211	856.5091	21.9342	0.5286	1,562.3887
Total	**69.4053**	**126.4652**	**298.3783**	**0.7368**	**50.4542**	**3.6698**	**54.1240**	**13.5562**	**3.6141**	**17.1703**	**1,569.0436**	**76,482.4748**	**78,051.5184**	**94.8836**	**0.8010**	**80,662.3076**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	47.1335	0.4767	36.8035	0.0254		2.1846	2.1846		2.1846	2.1846	183.6752	115.9086	299.5839	0.0366	0.0177	305.7683
Energy	0.6427	5.6348	3.3820	0.0351		0.4441	0.4441		0.4441	0.4441	0.0000	13,726.3803	13,726.3803	0.7894	0.2547	13,822.0224
Mobile	21.6291	120.3538	258.1929	0.6763	50.4542	1.0412	51.4954	13.5562	0.9854	14.5416	0.0000	61,996.6647	61,996.6647	2.8376	0.0000	62,067.6054
Waste						0.0000	0.0000		0.0000	0.0000	1,172.3804	0.0000	1,172.3804	69.2857	0.0000	2,904.5228
Water						0.0000	0.0000		0.0000	0.0000	212.9880	643.5211	856.5091	21.9342	0.5286	1,562.3887
Total	**69.4053**	**126.4652**	**298.3783**	**0.7368**	**50.4542**	**3.6698**	**54.1240**	**13.5562**	**3.6141**	**17.1703**	**1,569.0436**	**76,482.4748**	**78,051.5184**	**94.8836**	**0.8010**	**80,662.3076**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	21.6291	120.3538	258.1929	0.6763	50.4542	1.0412	51.4954	13.5562	0.9854	14.5416	0.0000	61,996.6647	61,996.6647	2.8376	0.0000	62,067.6054
Unmitigated	21.6291	120.3538	258.1929	0.6763	50.4542	1.0412	51.4954	13.5562	0.9854	14.5416	0.0000	61,996.6647	61,996.6647	2.8376	0.0000	62,067.6054

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,921.44	3,174.71	2691.73	7,878,257	7,878,257
General Light Industry	6,888.84	1,299.04	669.20	14,011,507	14,011,507
General Office Building	4,809.19	1,071.93	457.74	9,841,490	9,841,490
Government Office Building	9,931.75	0.00	0.00	19,108,679	19,108,679
Mobile Home Park	782.08	782.08	682.24	2,068,192	2,068,192
Single Family Housing	15,100.02	15,710.76	13667.94	40,357,362	40,357,362
Strip Mall	17,007.60	16,135.80	7841.03	41,948,899	41,948,899
Total	57,440.91	38,174.32	26,009.89	135,214,387	135,214,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,365.7191	7,365.7191	0.6675	0.1381	7,423.5630
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,365.7191	7,365.7191	0.6675	0.1381	7,423.5630
NaturalGas Mitigated	0.6427	5.6348	3.3820	0.0351		0.4441	0.4441		0.4441	0.4441	0.0000	6,360.6612	6,360.6612	0.1219	0.1166	6,398.4594
NaturalGas Unmitigated	0.6427	5.6348	3.3820	0.0351		0.4441	0.4441		0.4441	0.4441	0.0000	6,360.6612	6,360.6612	0.1219	0.1166	6,398.4594

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	6.00712e+006	0.0324	0.2768	0.1178	1.7700e-003		0.0224	0.0224		0.0224	0.0224	0.0000	320.5629	320.5629	6.1400e-003	5.8800e-003	322.4679
General Light Industry	3.46148e+007	0.1867	1.6968	1.4253	0.0102		0.1290	0.1290		0.1290	0.1290	0.0000	1,847.1765	1,847.1765	0.0354	0.0339	1,858.1534
General Office Building	9.48511e+006	0.0512	0.4650	0.3906	2.7900e-003		0.0353	0.0353		0.0353	0.0353	0.0000	506.1614	506.1614	9.7000e-003	9.2800e-003	509.1692
Government Office Building	3.13322e+006	0.0169	0.1536	0.1290	9.2000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	167.2004	167.2004	3.2000e-003	3.0700e-003	168.1940
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.12111e+007	0.3301	2.8205	1.2002	0.0180		0.2280	0.2280		0.2280	0.2280	0.0000	3,266.4563	3,266.4563	0.0626	0.0599	3,285.8672
Strip Mall	1.20826e+006	6.5200e-003	0.0592	0.0498	3.6000e-004		4.5000e-003	4.5000e-003		4.5000e-003	4.5000e-003	0.0000	64.4776	64.4776	1.2400e-003	1.1800e-003	64.8607
Total		**0.6427**	**5.6348**	**3.3820**	**0.0351**		**0.4441**	**0.4441**		**0.4441**	**0.4441**	**0.0000**	**6,360.6612**	**6,360.6612**	**0.1219**	**0.1166**	**6,398.4594**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	6.00712e+006	0.0324	0.2768	0.1178	1.7700e-003		0.0224	0.0224		0.0224	0.0224	0.0000	320.5629	320.5629	6.1400e-003	5.8800e-003	322.4679
General Light Industry	3.46148e+007	0.1867	1.6968	1.4253	0.0102		0.1290	0.1290		0.1290	0.1290	0.0000	1,847.1765	1,847.1765	0.0354	0.0339	1,858.1534
General Office Building	9.48511e+006	0.0512	0.4650	0.3906	2.7900e-003		0.0353	0.0353		0.0353	0.0353	0.0000	506.1614	506.1614	9.7000e-003	9.2800e-003	509.1692
Government Office Building	3.13322e+006	0.0169	0.1536	0.1290	9.2000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	167.2004	167.2004	3.2000e-003	3.0700e-003	168.1940
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.12111e+007	0.3301	2.8205	1.2002	0.0180		0.2280	0.2280		0.2280	0.2280	0.0000	3,266.4563	3,266.4563	0.0626	0.0599	3,285.8672
Strip Mall	1.20826e+006	6.5200e-003	0.0592	0.0498	3.6000e-004		4.5000e-003	4.5000e-003		4.5000e-003	4.5000e-003	0.0000	64.4776	64.4776	1.2400e-003	1.1800e-003	64.8607
Total		**0.6427**	**5.6348**	**3.3820**	**0.0351**		**0.4441**	**0.4441**		**0.4441**	**0.4441**	**0.0000**	**6,360.6612**	**6,360.6612**	**0.1219**	**0.1166**	**6,398.4594**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.56144e+006	371.7924	0.0337	6.9700e-003	374.7121
General Light Industry	1.08384e+007	1,573.1950	0.1426	0.0295	1,585.5495
General Office Building	1.03311e+007	1,499.5486	0.1359	0.0281	1,511.3247
Government Office Building	3.41266e+006	495.3464	0.0449	9.2900e-003	499.2364
Mobile Home Park	1.11344e+006	161.6157	0.0147	3.0300e-003	162.8849
Single Family Housing	1.70387e+007	2,473.1657	0.2241	0.0464	2,492.5877
Strip Mall	5.44993e+006	791.0554	0.0717	0.0148	797.2676
Total		**7,365.7191**	**0.6675**	**0.1381**	**7,423.5630**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.56144e+006	371.7924	0.0337	6.9700e-003	374.7121
General Light Industry	1.08384e+007	1,573.1950	0.1426	0.0295	1,585.5495
General Office Building	1.03311e+007	1,499.5486	0.1359	0.0281	1,511.3247
Government Office Building	3.41266e+006	495.3464	0.0449	9.2900e-003	499.2364
Mobile Home Park	1.11344e+006	161.6157	0.0147	3.0300e-003	162.8849
Single Family Housing	1.70387e+007	2,473.1657	0.2241	0.0464	2,492.5877
Strip Mall	5.44993e+006	791.0554	0.0717	0.0148	797.2676
Total		**7,365.7191**	**0.6675**	**0.1381**	**7,423.5630**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	47.1335	0.4767	36.8035	0.0254		2.1846	2.1846		2.1846	2.1846	183.6752	115.9086	299.5839	0.0366	0.0177	305.7683
Unmitigated	47.1335	0.4767	36.8035	0.0254		2.1846	2.1846		2.1846	2.1846	183.6752	115.9086	299.5839	0.0366	0.0177	305.7683

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	28.2063					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.6449	0.2245	15.0718	0.0243		2.0660	2.0660		2.0660	2.0660	183.6752	80.6524	264.3277	1.5500e-003	0.0177	269.6365
Landscaping	0.6715	0.2522	21.7317	1.1400e-003		0.1186	0.1186		0.1186	0.1186	0.0000	35.2562	35.2562	0.0350	0.0000	36.1317
Total	**47.1335**	**0.4767**	**36.8035**	**0.0254**		**2.1846**	**2.1846**		**2.1846**	**2.1846**	**183.6752**	**115.9087**	**299.5839**	**0.0366**	**0.0177**	**305.7683**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	28.2063					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.6449	0.2245	15.0718	0.0243		2.0660	2.0660		2.0660	2.0660	183.6752	80.6524	264.3277	1.5500e-003	0.0177	269.6365
Landscaping	0.6715	0.2522	21.7317	1.1400e-003		0.1186	0.1186		0.1186	0.1186	0.0000	35.2562	35.2562	0.0350	0.0000	36.1317
Total	**47.1335**	**0.4767**	**36.8035**	**0.0254**		**2.1846**	**2.1846**		**2.1846**	**2.1846**	**183.6752**	**115.9087**	**299.5839**	**0.0366**	**0.0177**	**305.7683**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	856.5091	21.9342	0.5286	1,562.3887
Unmitigated	856.5091	21.9342	0.5286	1,562.3887

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	38.3757 / 24.1934	54.6061	1.2543	0.0303	95.0000
General Light Industry	303.437 / 0	334.5873	9.9091	0.2379	653.2190
General Office Building	102.982 / 63.1183	145.6201	3.3659	0.0814	254.0112
Government Office Building	38.0235 / 23.3047	53.7662	1.2428	0.0300	93.7867
Mobile Home Park	13.552 / 8.54368	19.2837	0.4430	0.0107	33.5484
Single Family Housing	137.214 / 86.5047	195.2470	4.4849	0.1084	339.6775
Strip Mall	37.7637 / 23.1455	53.3988	1.2343	0.0298	93.1459
Total		**856.5091**	**21.9342**	**0.5286**	**1,562.3887**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	38.3757 / 24.1934	54.6061	1.2543	0.0303	95.0000
General Light Industry	303.437 / 0	334.5873	9.9091	0.2379	653.2190
General Office Building	102.982 / 63.1183	145.6201	3.3659	0.0814	254.0112
Government Office Building	38.0235 / 23.3047	53.7662	1.2428	0.0300	93.7867
Mobile Home Park	13.552 / 8.54368	19.2837	0.4430	0.0107	33.5484
Single Family Housing	137.214 / 86.5047	195.2470	4.4849	0.1084	339.6775
Strip Mall	37.7637 / 23.1455	53.3988	1.2343	0.0298	93.1459
Total		**856.5091**	**21.9342**	**0.5286**	**1,562.3887**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,172.3804	69.2857	0.0000	2,904.5228
Unmitigated	1,172.3804	69.2857	0.0000	2,904.5228

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	270.94	54.9984	3.2503	0.0000	136.2561
General Light Industry	1627.08	330.2825	19.5191	0.0000	818.2610
General Office Building	538.86	109.3837	6.4644	0.0000	270.9935
Government Office Building	178	36.1324	2.1354	0.0000	89.5165
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2529.66	513.4981	30.3469	0.0000	1,272.1699
Strip Mall	535.31	108.6631	6.4218	0.0000	269.2082
Total		**1,172.3804**	**69.2857**	**0.0000**	**2,904.5228**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	270.94	54.9984	3.2503	0.0000	136.2561
General Light Industry	1627.08	330.2825	19.5191	0.0000	818.2610
General Office Building	538.86	109.3837	6.4644	0.0000	270.9935
Government Office Building	178	36.1324	2.1354	0.0000	89.5165
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2529.66	513.4981	30.3469	0.0000	1,272.1699
Strip Mall	535.31	108.6631	6.4218	0.0000	269.2082
Total		**1,172.3804**	**69.2857**	**0.0000**	**2,904.5228**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaGPPlanningArea

Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,312.16	1000sqft	30.12	1,312,160.00	0
General Office Building	579.42	1000sqft	13.30	579,420.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	509.82	1000sqft	11.70	509,816.00	0
Single Family Housing	2,106.00	Dwelling Unit	683.77	3,790,800.00	6023

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,296,398.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,889,194.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,124,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,374,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblLandUse	LandUseSquareFeet	509,820.00	509,816.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	735.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,293.00	0.00
tblTripsAndVMT	WorkerTripNumber	459.00	0.00
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00

tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	5.39
tblVehicleTrips	ST_TR	1.32	0.99
tblVehicleTrips	ST_TR	2.46	1.85
tblVehicleTrips	ST_TR	5.00	3.76
tblVehicleTrips	ST_TR	9.91	7.46
tblVehicleTrips	ST_TR	42.04	31.65
tblVehicleTrips	SU_TR	6.07	4.57
tblVehicleTrips	SU_TR	0.68	0.51
tblVehicleTrips	SU_TR	1.05	0.79
tblVehicleTrips	SU_TR	4.36	3.28
tblVehicleTrips	SU_TR	8.62	6.49

tblVehicleTrips	SU_TR	20.43	15.38
tblVehicleTrips	WD_TR	6.59	4.96
tblVehicleTrips	WD_TR	6.97	5.25
tblVehicleTrips	WD_TR	11.03	8.30
tblVehicleTrips	WD_TR	68.93	51.89
tblVehicleTrips	WD_TR	4.99	3.76
tblVehicleTrips	WD_TR	9.52	7.17
tblVehicleTrips	WD_TR	44.32	33.36
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.24	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.24	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Energy	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
Mobile	153.9947	738.5121	1,690.5302	4.5391	334.4919	6.6249	341.1167	89.5820	6.2698	95.8518		458,467.4709	458,467.4709	20.0603		458,968.9771
Total	**2,794.5126**	**812.4892**	**4,656.4069**	**9.1001**	**334.4919**	**381.2970**	**715.7888**	**89.5820**	**380.9419**	**470.5239**	**36,349.6039**	**513,279.3087**	**549,628.9126**	**21.5315**	**4.2043**	**551,420.0762**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Energy	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
Mobile	153.9947	738.5121	1,690.5302	4.5391	334.4919	6.6249	341.1167	89.5820	6.2698	95.8518		458,467.4709	458,467.4709	20.0603		458,968.9771
Total	**2,794.5126**	**812.4892**	**4,656.4069**	**9.1001**	**334.4919**	**381.2970**	**715.7888**	**89.5820**	**380.9419**	**470.5239**	**36,349.6039**	**513,279.3087**	**549,628.9126**	**21.5315**	**4.2043**	**551,420.0762**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

StHelenaGPPlanningArea - Napa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	153.9947	738.5121	1,690.5302	4.5391	334.4919	6.6249	341.1167	89.5820	6.2698	95.8518		458,467.4709	458,467.4709	20.0603		458,968.9771
Unmitigated	153.9947	738.5121	1,690.5302	4.5391	334.4919	6.6249	341.1167	89.5820	6.2698	95.8518		458,467.4709	458,467.4709	20.0603		458,968.9771

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,921.44	3,174.71	2691.73	7,878,257	7,878,257
General Light Industry	6,888.84	1,299.04	669.20	14,011,507	14,011,507
General Office Building	4,809.19	1,071.93	457.74	9,841,490	9,841,490
Government Office Building	9,931.75	0.00	0.00	19,108,679	19,108,679
Mobile Home Park	782.08	782.08	682.24	2,068,192	2,068,192
Single Family Housing	15,100.02	15,710.76	13667.94	40,357,362	40,357,362
Strip Mall	17,007.60	16,135.80	7841.03	41,948,899	41,948,899
Total	57,440.91	38,174.32	26,009.89	135,214,387	135,214,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
NaturalGas Unmitigated	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16457.9	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	94835	1.0227	9.2976	7.8099	0.0558		0.7066	0.7066		0.7066	0.7066		11,157.0607	11,157.0607	0.2138	0.2046	11,223.3615
General Office Building	25986.6	0.2803	2.5477	2.1401	0.0153		0.1936	0.1936		0.1936	0.1936		3,057.2459	3,057.2459	0.0586	0.0561	3,075.4136
Government Office Building	8584.16	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167702	1.8086	15.4549	6.5765	0.0987		1.2495	1.2495		1.2495	1.2495		19,729.5986	19,729.5986	0.3782	0.3617	19,846.8417
Strip Mall	3310.31	0.0357	0.3245	0.2726	1.9500e-003		0.0247	0.0247		0.0247	0.0247		389.4485	389.4485	7.4600e-003	7.1400e-003	391.7628
Total		**3.5217**	**30.8754**	**18.5313**	**0.1921**		**2.4332**	**2.4332**		**2.4332**	**2.4332**		**38,418.7878**	**38,418.7878**	**0.7364**	**0.7044**	**38,647.0914**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16.4579	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	94.835	1.0227	9.2976	7.8099	0.0558		0.7066	0.7066		0.7066	0.7066		11,157.0607	11,157.0607	0.2138	0.2046	11,223.3615
General Office Building	25.9866	0.2803	2.5477	2.1401	0.0153		0.1936	0.1936		0.1936	0.1936		3,057.2459	3,057.2459	0.0586	0.0561	3,075.4136
Government Office Building	8.58416	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.702	1.8086	15.4549	6.5765	0.0987		1.2495	1.2495		1.2495	1.2495		19,729.5986	19,729.5986	0.3782	0.3617	19,846.8417
Strip Mall	3.31031	0.0357	0.3245	0.2726	1.9500e-003		0.0247	0.0247		0.0247	0.0247		389.4485	389.4485	7.4600e-003	7.1400e-003	391.7628
Total		**3.5217**	**30.8754**	**18.5313**	**0.1921**		**2.4332**	**2.4332**		**2.4332**	**2.4332**		**38,418.7878**	**38,418.7878**	**0.7364**	**0.7044**	**38,647.0914**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Unmitigated	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	25.2647					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	154.5550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,449.7159	40.2997	2,705.8822	4.3562		370.9216	370.9216		370.9216	370.9216	36,349.6039	15,961.2353	52,310.8392	0.3059	3.4999	53,361.4696
Landscaping	7.4607	2.8020	241.4633	0.0127		1.3174	1.3174		1.3174	1.3174		431.8148	431.8148	0.4289		442.5381
Total	**2,636.9962**	**43.1017**	**2,947.3454**	**4.3689**		**372.2389**	**372.2389**		**372.2389**	**372.2389**	**36,349.6039**	**16,393.0501**	**52,742.6539**	**0.7349**	**3.4999**	**53,804.0077**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	25.2647					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	154.5550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,449.7159	40.2997	2,705.8822	4.3562		370.9216	370.9216		370.9216	370.9216	36,349.6039	15,961.2353	52,310.8392	0.3059	3.4999	53,361.4696
Landscaping	7.4607	2.8020	241.4633	0.0127		1.3174	1.3174		1.3174	1.3174		431.8148	431.8148	0.4289		442.5381
Total	**2,636.9962**	**43.1017**	**2,947.3454**	**4.3689**		**372.2389**	**372.2389**		**372.2389**	**372.2389**	**36,349.6039**	**16,393.0501**	**52,742.6539**	**0.7349**	**3.4999**	**53,804.0077**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaGPPlanningArea

Napa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	589.00	Dwelling Unit	36.81	589,000.00	1685
General Light Industry	1,312.16	1000sqft	30.12	1,312,160.00	0
General Office Building	579.42	1000sqft	13.30	579,420.00	0
Government Office Building	191.40	1000sqft	4.39	191,400.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	509.82	1000sqft	11.70	509,816.00	0
Single Family Housing	2,106.00	Dwelling Unit	683.77	3,790,800.00	6023

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	320	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 (latest year for which verified data available) MCE pounds of CO2/MWh.

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match exising VMT from traffic data.

Woodstoves - No woodstoves.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,296,398.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,889,194.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,124,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,374,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblLandUse	LandUseSquareFeet	509,820.00	509,816.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	320
tblTripsAndVMT	VendorTripNumber	735.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,293.00	0.00
tblTripsAndVMT	WorkerTripNumber	459.00	0.00
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TL	7.30	7.40
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00

tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
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tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TL	10.80	7.40
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
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tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	5.39
tblVehicleTrips	ST_TR	1.32	0.99
tblVehicleTrips	ST_TR	2.46	1.85
tblVehicleTrips	ST_TR	5.00	3.76
tblVehicleTrips	ST_TR	9.91	7.46
tblVehicleTrips	ST_TR	42.04	31.65
tblVehicleTrips	SU_TR	6.07	4.57
tblVehicleTrips	SU_TR	0.68	0.51
tblVehicleTrips	SU_TR	1.05	0.79
tblVehicleTrips	SU_TR	4.36	3.28
tblVehicleTrips	SU_TR	8.62	6.49

tblVehicleTrips	SU_TR	20.43	15.38
tblVehicleTrips	WD_TR	6.59	4.96
tblVehicleTrips	WD_TR	6.97	5.25
tblVehicleTrips	WD_TR	11.03	8.30
tblVehicleTrips	WD_TR	68.93	51.89
tblVehicleTrips	WD_TR	4.99	3.76
tblVehicleTrips	WD_TR	9.52	7.17
tblVehicleTrips	WD_TR	44.32	33.36
tblWoodstoves	NumberCatalytic	11.78	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.24	0.00
tblWoodstoves	NumberNoncatalytic	11.78	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.24	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Energy	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
Mobile	137.9916	787.5962	1,754.1634	4.2764	334.4919	6.6908	341.1826	89.5820	6.3329	95.9148		431,880.3368	431,880.3368	20.6094		432,395.5716
Total	**2,778.5096**	**861.5733**	**4,720.0401**	**8.8374**	**334.4919**	**381.3629**	**715.8547**	**89.5820**	**381.0050**	**470.5870**	**36,349.6039**	**486,692.1747**	**523,041.7785**	**22.0806**	**4.2043**	**524,846.6707**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Energy	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
Mobile	137.9916	787.5962	1,754.1634	4.2764	334.4919	6.6908	341.1826	89.5820	6.3329	95.9148		431,880.3368	431,880.3368	20.6094		432,395.5716
Total	**2,778.5096**	**861.5733**	**4,720.0401**	**8.8374**	**334.4919**	**381.3629**	**715.8547**	**89.5820**	**381.0050**	**470.5870**	**36,349.6039**	**486,692.1747**	**523,041.7785**	**22.0806**	**4.2043**	**524,846.6707**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

StHelenaGPPlanningArea - Napa County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	137.9916	787.5962	1,754.1634	4.2764	334.4919	6.6908	341.1826	89.5820	6.3329	95.9148		431,880.3368	431,880.3368	20.6094		432,395.5716
Unmitigated	137.9916	787.5962	1,754.1634	4.2764	334.4919	6.6908	341.1826	89.5820	6.3329	95.9148		431,880.3368	431,880.3368	20.6094		432,395.5716

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,921.44	3,174.71	2691.73	7,878,257	7,878,257
General Light Industry	6,888.84	1,299.04	669.20	14,011,507	14,011,507
General Office Building	4,809.19	1,071.93	457.74	9,841,490	9,841,490
Government Office Building	9,931.75	0.00	0.00	19,108,679	19,108,679
Mobile Home Park	782.08	782.08	682.24	2,068,192	2,068,192
Single Family Housing	15,100.02	15,710.76	13667.94	40,357,362	40,357,362
Strip Mall	17,007.60	16,135.80	7841.03	41,948,899	41,948,899
Total	57,440.91	38,174.32	26,009.89	135,214,387	135,214,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.40	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.40	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Light Industry	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
General Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Government Office Building	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Mobile Home Park	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Single Family Housing	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277
Strip Mall	0.546902	0.042688	0.176112	0.129476	0.030454	0.007193	0.018993	0.034273	0.003750	0.001939	0.005928	0.001014	0.001277

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914
NaturalGas Unmitigated	3.5217	30.8754	18.5313	0.1921		2.4332	2.4332		2.4332	2.4332		38,418.7878	38,418.7878	0.7364	0.7043	38,647.0914

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16457.9	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	94835	1.0227	9.2976	7.8099	0.0558		0.7066	0.7066		0.7066	0.7066		11,157.0607	11,157.0607	0.2138	0.2046	11,223.3615
General Office Building	25986.6	0.2803	2.5477	2.1401	0.0153		0.1936	0.1936		0.1936	0.1936		3,057.2459	3,057.2459	0.0586	0.0561	3,075.4136
Government Office Building	8584.16	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167702	1.8086	15.4549	6.5765	0.0987		1.2495	1.2495		1.2495	1.2495		19,729.5986	19,729.5986	0.3782	0.3617	19,846.8417
Strip Mall	3310.31	0.0357	0.3245	0.2726	1.9500e-003		0.0247	0.0247		0.0247	0.0247		389.4485	389.4485	7.4600e-003	7.1400e-003	391.7628
Total		**3.5217**	**30.8754**	**18.5313**	**0.1921**		**2.4332**	**2.4332**		**2.4332**	**2.4332**		**38,418.7878**	**38,418.7878**	**0.7364**	**0.7044**	**38,647.0914**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	16.4579	0.1775	1.5167	0.6454	9.6800e-003		0.1226	0.1226		0.1226	0.1226		1,936.2200	1,936.2200	0.0371	0.0355	1,947.7260
General Light Industry	94.835	1.0227	9.2976	7.8099	0.0558		0.7066	0.7066		0.7066	0.7066		11,157.0607	11,157.0607	0.2138	0.2046	11,223.3615
General Office Building	25.9866	0.2803	2.5477	2.1401	0.0153		0.1936	0.1936		0.1936	0.1936		3,057.2459	3,057.2459	0.0586	0.0561	3,075.4136
Government Office Building	8.58416	0.0926	0.8416	0.7069	5.0500e-003		0.0640	0.0640		0.0640	0.0640		1,009.9011	1,009.9011	0.0194	0.0185	1,015.9024
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.702	1.8086	15.4549	6.5765	0.0987		1.2495	1.2495		1.2495	1.2495		19,729.5986	19,729.5986	0.3782	0.3617	19,846.8417
Strip Mall	3.31031	0.0357	0.3245	0.2726	1.9500e-003		0.0247	0.0247		0.0247	0.0247		389.4485	389.4485	7.4600e-003	7.1400e-003	391.7628
Total		**3.5217**	**30.8754**	**18.5313**	**0.1921**		**2.4332**	**2.4332**		**2.4332**	**2.4332**		**38,418.7878**	**38,418.7878**	**0.7364**	**0.7044**	**38,647.0914**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077
Unmitigated	2,636.9962	43.1017	2,947.3454	4.3689		372.2389	372.2389		372.2389	372.2389	36,349.6039	16,393.0501	52,742.6539	0.7349	3.4999	53,804.0077

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	25.2647					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	154.5550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,449.7159	40.2997	2,705.8822	4.3562		370.9216	370.9216		370.9216	370.9216	36,349.6039	15,961.2353	52,310.8392	0.3059	3.4999	53,361.4696
Landscaping	7.4607	2.8020	241.4633	0.0127		1.3174	1.3174		1.3174	1.3174		431.8148	431.8148	0.4289		442.5381
Total	**2,636.9962**	**43.1017**	**2,947.3454**	**4.3689**		**372.2389**	**372.2389**		**372.2389**	**372.2389**	**36,349.6039**	**16,393.0501**	**52,742.6539**	**0.7349**	**3.4999**	**53,804.0077**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	25.2647					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	154.5550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,449.7159	40.2997	2,705.8822	4.3562		370.9216	370.9216		370.9216	370.9216	36,349.6039	15,961.2353	52,310.8392	0.3059	3.4999	53,361.4696
Landscaping	7.4607	2.8020	241.4633	0.0127		1.3174	1.3174		1.3174	1.3174		431.8148	431.8148	0.4289		442.5381
Total	**2,636.9962**	**43.1017**	**2,947.3454**	**4.3689**		**372.2389**	**372.2389**		**372.2389**	**372.2389**	**36,349.6039**	**16,393.0501**	**52,742.6539**	**0.7349**	**3.4999**	**53,804.0077**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaPlanningAreaBuildout

Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,444.32	1000sqft	33.16	1,444,320.00	0
General Office Building	680.63	1000sqft	15.63	680,630.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	684.41	1000sqft	15.71	684,411.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,520,536.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,561,607.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	826.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,569.00	0.00
tblTripsAndVMT	WorkerTripNumber	514.00	0.00
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	6.18
tblVehicleTrips	ST_TR	1.32	1.14
tblVehicleTrips	ST_TR	2.46	2.12
tblVehicleTrips	ST_TR	5.00	4.31
tblVehicleTrips	ST_TR	9.91	8.55
tblVehicleTrips	ST_TR	42.04	36.27
tblVehicleTrips	SU_TR	6.07	5.24
tblVehicleTrips	SU_TR	0.68	0.59
tblVehicleTrips	SU_TR	1.05	0.91
tblVehicleTrips	SU_TR	4.36	3.76
tblVehicleTrips	SU_TR	8.62	7.44
tblVehicleTrips	SU_TR	20.43	17.63

tblVehicleTrips	WD_TR	6.59	5.69
tblVehicleTrips	WD_TR	6.97	6.01
tblVehicleTrips	WD_TR	11.03	9.52
tblVehicleTrips	WD_TR	68.93	59.47
tblVehicleTrips	WD_TR	4.99	4.30
tblVehicleTrips	WD_TR	9.52	8.21
tblVehicleTrips	WD_TR	44.32	38.24
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	50.2131	0.4930	38.1575	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9144	309.2791	0.0372	0.0182	315.6179
Energy	0.6848	6.0122	3.6689	0.0374		0.4731	0.4731		0.4731	0.4731	0.0000	11,010.9871	11,010.9871	0.8786	0.2792	11,116.1409
Mobile	7.8678	64.4937	97.7563	0.5685	65.8778	0.2363	66.1141	17.6584	0.2206	17.8789	0.0000	52,854.7081	52,854.7081	1.8753	0.0000	52,901.5904
Waste						0.0000	0.0000		0.0000	0.0000	1,284.1635	0.0000	1,284.1635	75.8919	0.0000	3,181.4606
Water						0.0000	0.0000		0.0000	0.0000	238.4241	370.0430	608.4671	24.5539	0.5918	1,398.6596
Total	**58.7657**	**70.9989**	**139.5827**	**0.6319**	**65.8778**	**2.9546**	**68.8325**	**17.6584**	**2.9389**	**20.5972**	**1,710.9523**	**64,356.6526**	**66,067.6049**	**103.2369**	**0.8891**	**68,913.4694**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	50.2131	0.4930	38.1575	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9144	309.2791	0.0372	0.0182	315.6179
Energy	0.6848	6.0122	3.6689	0.0374		0.4731	0.4731		0.4731	0.4731	0.0000	11,010.9871	11,010.9871	0.8786	0.2792	11,116.1409
Mobile	7.8678	64.4937	97.7563	0.5685	65.8778	0.2363	66.1141	17.6584	0.2206	17.8789	0.0000	52,854.7081	52,854.7081	1.8753	0.0000	52,901.5904
Waste						0.0000	0.0000		0.0000	0.0000	1,284.1635	0.0000	1,284.1635	75.8919	0.0000	3,181.4606
Water						0.0000	0.0000		0.0000	0.0000	238.4241	370.0430	608.4671	24.5539	0.5918	1,398.6596
Total	**58.7657**	**70.9989**	**139.5827**	**0.6319**	**65.8778**	**2.9546**	**68.8325**	**17.6584**	**2.9389**	**20.5972**	**1,710.9523**	**64,356.6526**	**66,067.6049**	**103.2369**	**0.8891**	**68,913.4694**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.8678	64.4937	97.7563	0.5685	65.8778	0.2363	66.1141	17.6584	0.2206	17.8789	0.0000	52,854.7081	52,854.7081	1.8753	0.0000	52,901.5904
Unmitigated	7.8678	64.4937	97.7563	0.5685	65.8778	0.2363	66.1141	17.6584	0.2206	17.8789	0.0000	52,854.7081	52,854.7081	1.8753	0.0000	52,901.5904

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,313.02	4,684.44	3971.92	11,314,915	11,314,915
General Light Industry	8,680.36	1,646.52	852.15	17,185,143	17,185,143
General Office Building	6,479.60	1,442.94	619.37	12,901,935	12,901,935
Government Office Building	13,779.79	0.00	0.00	25,795,774	25,795,774
Mobile Home Park	894.40	896.48	782.08	2,302,770	2,302,770
Single Family Housing	17,249.21	17,963.55	15631.44	44,868,485	44,868,485
Strip Mall	26,171.88	24,823.59	12066.17	62,805,277	62,805,277
Total	77,568.26	51,457.52	33,923.13	177,174,298	177,174,298

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,234.3479	4,234.3479	0.7488	0.1549	4,299.2315
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,234.3479	4,234.3479	0.7488	0.1549	4,299.2315
NaturalGas Mitigated	0.6848	6.0122	3.6689	0.0374		0.4731	0.4731		0.4731	0.4731	0.0000	6,776.6392	6,776.6392	0.1299	0.1242	6,816.9094
NaturalGas Unmitigated	0.6848	6.0122	3.6689	0.0374		0.4731	0.4731		0.4731	0.4731	0.0000	6,776.6392	6,776.6392	0.1299	0.1242	6,816.9094

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.73073e+006	0.0417	0.3562	0.1516	2.2700e-003		0.0288	0.0288		0.0288	0.0288	0.0000	412.5411	412.5411	7.9100e-003	7.5600e-003	414.9926
General Light Industry	3.81012e+007	0.2055	1.8677	1.5689	0.0112		0.1420	0.1420		0.1420	0.1420	0.0000	2,033.2231	2,033.2231	0.0390	0.0373	2,045.3055
General Office Building	1.11419e+007	0.0601	0.5462	0.4588	3.2800e-003		0.0415	0.0415		0.0415	0.0415	0.0000	594.5749	594.5749	0.0114	0.0109	598.1082
Government Office Building	3.79309e+006	0.0205	0.1859	0.1562	1.1200e-003		0.0141	0.0141		0.0141	0.0141	0.0000	202.4139	202.4139	3.8800e-003	3.7100e-003	203.6167
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.10658e+007	0.3293	2.8138	1.1974	0.0180		0.2275	0.2275		0.2275	0.2275	0.0000	3,258.7012	3,258.7012	0.0625	0.0597	3,278.0660
Strip Mall	1.62205e+006	8.7500e-003	0.0795	0.0668	4.8000e-004		6.0400e-003	6.0400e-003		6.0400e-003	6.0400e-003	0.0000	86.5590	86.5590	1.6600e-003	1.5900e-003	87.0734
Total		**0.6848**	**6.0122**	**3.6689**	**0.0374**		**0.4731**	**0.4731**		**0.4731**	**0.4731**	**0.0000**	**6,776.6392**	**6,776.6392**	**0.1299**	**0.1242**	**6,816.9094**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.73073e+006	0.0417	0.3562	0.1516	2.2700e-003		0.0288	0.0288		0.0288	0.0288	0.0000	412.5411	412.5411	7.9100e-003	7.5600e-003	414.9926
General Light Industry	3.81012e+007	0.2055	1.8677	1.5689	0.0112		0.1420	0.1420		0.1420	0.1420	0.0000	2,033.2231	2,033.2231	0.0390	0.0373	2,045.3055
General Office Building	1.11419e+007	0.0601	0.5462	0.4588	3.2800e-003		0.0415	0.0415		0.0415	0.0415	0.0000	594.5749	594.5749	0.0114	0.0109	598.1082
Government Office Building	3.79309e+006	0.0205	0.1859	0.1562	1.1200e-003		0.0141	0.0141		0.0141	0.0141	0.0000	202.4139	202.4139	3.8800e-003	3.7100e-003	203.6167
Mobile Home Park	3.53472e+006	0.0191	0.1629	0.0693	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	188.6261	188.6261	3.6200e-003	3.4600e-003	189.7470
Single Family Housing	6.10658e+007	0.3293	2.8138	1.1974	0.0180		0.2275	0.2275		0.2275	0.2275	0.0000	3,258.7012	3,258.7012	0.0625	0.0597	3,278.0660
Strip Mall	1.62205e+006	8.7500e-003	0.0795	0.0668	4.8000e-004		6.0400e-003	6.0400e-003		6.0400e-003	6.0400e-003	0.0000	86.5590	86.5590	1.6600e-003	1.5900e-003	87.0734
Total		**0.6848**	**6.0122**	**3.6689**	**0.0374**		**0.4731**	**0.4731**		**0.4731**	**0.4731**	**0.0000**	**6,776.6392**	**6,776.6392**	**0.1299**	**0.1242**	**6,816.9094**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.29639e+006	245.2157	0.0434	8.9700e-003	248.9732
General Light Industry	1.19301e+007	887.4687	0.1569	0.0325	901.0676
General Office Building	1.21356e+007	902.7594	0.1596	0.0330	916.5925
Government Office Building	4.13139e+006	307.3305	0.0544	0.0112	312.0398
Mobile Home Park	1.11344e+006	82.8281	0.0147	3.0300e-003	84.0972
Single Family Housing	1.69983e+007	1,264.4881	0.2236	0.0463	1,283.8641
Strip Mall	7.31635e+006	544.2573	0.0962	0.0199	552.5971
Total		**4,234.3479**	**0.7488**	**0.1549**	**4,299.2315**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.29639e+006	245.2157	0.0434	8.9700e-003	248.9732
General Light Industry	1.19301e+007	887.4687	0.1569	0.0325	901.0676
General Office Building	1.21356e+007	902.7594	0.1596	0.0330	916.5925
Government Office Building	4.13139e+006	307.3305	0.0544	0.0112	312.0398
Mobile Home Park	1.11344e+006	82.8281	0.0147	3.0300e-003	84.0972
Single Family Housing	1.69983e+007	1,264.4881	0.2236	0.0463	1,283.8641
Strip Mall	7.31635e+006	544.2573	0.0962	0.0199	552.5971
Total		**4,234.3479**	**0.7488**	**0.1549**	**4,299.2315**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	50.2131	0.4930	38.1575	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9144	309.2791	0.0372	0.0182	315.6179
Unmitigated	50.2131	0.4930	38.1575	0.0261		2.2452	2.2452		2.2452	2.2452	188.3647	120.9144	309.2791	0.0372	0.0182	315.6179

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.9572					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	30.5819					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.9934	0.2310	15.4569	0.0249		2.1189	2.1189		2.1189	2.1189	188.3647	83.6611	272.0258	1.6000e-003	0.0182	277.4758
Landscaping	0.6807	0.2620	22.7006	1.2000e-003		0.1264	0.1264		0.1264	0.1264	0.0000	37.2534	37.2534	0.0356	0.0000	38.1420
Total	**50.2131**	**0.4930**	**38.1575**	**0.0261**		**2.2452**	**2.2452**		**2.2452**	**2.2452**	**188.3647**	**120.9144**	**309.2791**	**0.0372**	**0.0182**	**315.6179**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.9572					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	30.5819					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	13.9934	0.2310	15.4569	0.0249		2.1189	2.1189		2.1189	2.1189	188.3647	83.6611	272.0258	1.6000e-003	0.0182	277.4758
Landscaping	0.6807	0.2620	22.7006	1.2000e-003		0.1264	0.1264		0.1264	0.1264	0.0000	37.2534	37.2534	0.0356	0.0000	38.1420
Total	**50.2131**	**0.4930**	**38.1575**	**0.0261**		**2.2452**	**2.2452**		**2.2452**	**2.2452**	**188.3647**	**120.9144**	**309.2791**	**0.0372**	**0.0182**	**315.6179**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	608.4671	24.5539	0.5918	1,398.6596
Unmitigated	608.4671	24.5539	0.5918	1,398.6596

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	49.3868 / 31.1351	43.6537	1.6142	0.0390	95.6377
General Light Industry	333.999 / 0	240.4037	10.9071	0.2619	591.1277
General Office Building	120.971 / 74.1435	106.3758	3.9539	0.0956	233.7002
Government Office Building	46.0314 / 28.2128	40.4778	1.5045	0.0364	88.9268
Mobile Home Park	13.552 / 8.54368	11.9789	0.4430	0.0107	26.2436
Single Family Housing	136.889 / 86.2993	120.9979	4.4742	0.1082	265.0855
Strip Mall	50.696 / 31.0717	44.5795	1.6570	0.0401	97.9381
Total		**608.4671**	**24.5539**	**0.5918**	**1,398.6596**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	49.3868 / 31.1351	43.6537	1.6142	0.0390	95.6377
General Light Industry	333.999 / 0	240.4037	10.9071	0.2619	591.1277
General Office Building	120.971 / 74.1435	106.3758	3.9539	0.0956	233.7002
Government Office Building	46.0314 / 28.2128	40.4778	1.5045	0.0364	88.9268
Mobile Home Park	13.552 / 8.54368	11.9789	0.4430	0.0107	26.2436
Single Family Housing	136.889 / 86.2993	120.9979	4.4742	0.1082	265.0855
Strip Mall	50.696 / 31.0717	44.5795	1.6570	0.0401	97.9381
Total		**608.4671**	**24.5539**	**0.5918**	**1,398.6596**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,284.1635	75.8919	0.0000	3,181.4606
Unmitigated	1,284.1635	75.8919	0.0000	3,181.4606

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	348.68	70.7789	4.1829	0.0000	175.3517
General Light Industry	1790.96	363.5487	21.4851	0.0000	900.6765
General Office Building	632.99	128.4913	7.5936	0.0000	318.3316
Government Office Building	215.49	43.7425	2.5851	0.0000	108.3703
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2523.78	512.3045	30.2763	0.0000	1,269.2128
Strip Mall	718.63	145.8754	8.6210	0.0000	361.4001
Total		**1,284.1635**	**75.8919**	**0.0000**	**3,181.4606**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	348.68	70.7789	4.1829	0.0000	175.3517
General Light Industry	1790.96	363.5487	21.4851	0.0000	900.6765
General Office Building	632.99	128.4913	7.5936	0.0000	318.3316
Government Office Building	215.49	43.7425	2.5851	0.0000	108.3703
Mobile Home Park	95.68	19.4222	1.1478	0.0000	48.1176
Single Family Housing	2523.78	512.3045	30.2763	0.0000	1,269.2128
Strip Mall	718.63	145.8754	8.6210	0.0000	361.4001
Total		**1,284.1635**	**75.8919**	**0.0000**	**3,181.4606**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaPlanningAreaBuildout

Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,444.32	1000sqft	33.16	1,444,320.00	0
General Office Building	680.63	1000sqft	15.63	680,630.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	684.41	1000sqft	15.71	684,411.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,520,536.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,561,607.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	826.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,569.00	0.00
tblTripsAndVMT	WorkerTripNumber	514.00	0.00
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	6.18
tblVehicleTrips	ST_TR	1.32	1.14
tblVehicleTrips	ST_TR	2.46	2.12
tblVehicleTrips	ST_TR	5.00	4.31
tblVehicleTrips	ST_TR	9.91	8.55
tblVehicleTrips	ST_TR	42.04	36.27
tblVehicleTrips	SU_TR	6.07	5.24
tblVehicleTrips	SU_TR	0.68	0.59
tblVehicleTrips	SU_TR	1.05	0.91
tblVehicleTrips	SU_TR	4.36	3.76
tblVehicleTrips	SU_TR	8.62	7.44
tblVehicleTrips	SU_TR	20.43	17.63

tblVehicleTrips	WD_TR	6.59	5.69
tblVehicleTrips	WD_TR	6.97	6.01
tblVehicleTrips	WD_TR	11.03	9.52
tblVehicleTrips	WD_TR	68.93	59.47
tblVehicleTrips	WD_TR	4.99	4.30
tblVehicleTrips	WD_TR	9.52	8.21
tblVehicleTrips	WD_TR	44.32	38.24
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Energy	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
Mobile	56.9568	406.5819	653.8497	3.8085	437.5576	1.5102	439.0678	116.9153	1.4095	118.3248		390,013.4388	390,013.4388	13.0056		390,338.5789
Total	**2,775.2844**	**483.9120**	**3,701.2114**	**8.4949**	**437.5576**	**385.9104**	**823.4680**	**116.9153**	**385.8097**	**502.7250**	**37,277.6610**	**447,957.6820**	**485,235.3431**	**14.5429**	**4.3432**	**486,893.1732**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Energy	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
Mobile	56.9568	406.5819	653.8497	3.8085	437.5576	1.5102	439.0678	116.9153	1.4095	118.3248		390,013.4388	390,013.4388	13.0056		390,338.5789
Total	**2,775.2844**	**483.9120**	**3,701.2114**	**8.4949**	**437.5576**	**385.9104**	**823.4680**	**116.9153**	**385.8097**	**502.7250**	**37,277.6610**	**447,957.6820**	**485,235.3431**	**14.5429**	**4.3432**	**486,893.1732**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

StHelenaPlanningAreaBuildout - Napa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	56.9568	406.5819	653.8497	3.8085	437.5576	1.5102	439.0678	116.9153	1.4095	118.3248		390,013.4388	390,013.4388	13.0056		390,338.5789
Unmitigated	56.9568	406.5819	653.8497	3.8085	437.5576	1.5102	439.0678	116.9153	1.4095	118.3248		390,013.4388	390,013.4388	13.0056		390,338.5789

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,313.02	4,684.44	3971.92	11,314,915	11,314,915
General Light Industry	8,680.36	1,646.52	852.15	17,185,143	17,185,143
General Office Building	6,479.60	1,442.94	619.37	12,901,935	12,901,935
Government Office Building	13,779.79	0.00	0.00	25,795,774	25,795,774
Mobile Home Park	894.40	896.48	782.08	2,302,770	2,302,770
Single Family Housing	17,249.21	17,963.55	15631.44	44,868,485	44,868,485
Strip Mall	26,171.88	24,823.59	12066.17	62,805,277	62,805,277
Total	77,568.26	51,457.52	33,923.13	177,174,298	177,174,298

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
NaturalGas Unmitigated	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21180.1	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	104387	1.1257	10.2340	8.5966	0.0614		0.7778	0.7778		0.7778	0.7778		12,280.7934	12,280.7934	0.2354	0.2252	12,353.7720
General Office Building	30525.8	0.3292	2.9927	2.5139	0.0180		0.2275	0.2275		0.2275	0.2275		3,591.2693	3,591.2693	0.0688	0.0658	3,612.6105
Government Office Building	10392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	4443.98	0.0479	0.4357	0.3660	2.6100e-003		0.0331	0.0331		0.0331	0.0331		522.8216	522.8216	0.0100	9.5900e-003	525.9285
Total		**3.7520**	**32.9437**	**20.1035**	**0.2047**		**2.5923**	**2.5923**		**2.5923**	**2.5923**		**40,931.3207**	**40,931.3207**	**0.7845**	**0.7504**	**41,174.5551**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21.1801	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	104.387	1.1257	10.2340	8.5966	0.0614		0.7778	0.7778		0.7778	0.7778		12,280.7934	12,280.7934	0.2354	0.2252	12,353.7720
General Office Building	30.5258	0.3292	2.9927	2.5139	0.0180		0.2275	0.2275		0.2275	0.2275		3,591.2693	3,591.2693	0.0688	0.0658	3,612.6105
Government Office Building	10.392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	4.44398	0.0479	0.4357	0.3660	2.6100e-003		0.0331	0.0331		0.0331	0.0331		522.8216	522.8216	0.0100	9.5900e-003	525.9285
Total		**3.7520**	**32.9437**	**20.1035**	**0.2047**		**2.5923**	**2.5923**		**2.5923**	**2.5923**		**40,931.3207**	**40,931.3207**	**0.7845**	**0.7504**	**41,174.5551**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Unmitigated	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	27.1626					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	167.5721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5629	2.9106	252.2283	0.0134		1.4043	1.4043		1.4043	1.4043		456.2755	456.2755	0.4354		467.1600
Total	**2,714.5755**	**44.3864**	**3,027.2582**	**4.4818**		**381.8079**	**381.8079**		**381.8079**	**381.8079**	**37,277.6610**	**17,012.9225**	**54,290.5836**	**0.7527**	**3.5927**	**55,380.0392**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	27.1626					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	167.5721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5629	2.9106	252.2283	0.0134		1.4043	1.4043		1.4043	1.4043		456.2755	456.2755	0.4354		467.1600
Total	**2,714.5755**	**44.3864**	**3,027.2582**	**4.4818**		**381.8079**	**381.8079**		**381.8079**	**381.8079**	**37,277.6610**	**17,012.9225**	**54,290.5836**	**0.7527**	**3.5927**	**55,380.0392**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

StHelenaPlanningAreaBuildout

Napa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	758.00	Dwelling Unit	47.38	758,000.00	2168
General Light Industry	1,444.32	1000sqft	33.16	1,444,320.00	0
General Office Building	680.63	1000sqft	15.63	680,630.00	0
Government Office Building	231.71	1000sqft	5.32	231,710.00	0
Mobile Home Park	208.00	Dwelling Unit	26.20	249,600.00	595
Strip Mall	684.41	1000sqft	15.71	684,411.00	0
Single Family Housing	2,101.00	Dwelling Unit	682.14	3,781,800.00	6009

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	164	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factor includes MCE reading renewable energy goal of 80%

Land Use -

Construction Phase - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Off-road Equipment - No construction

Grading - No construction

Trips and VMT - No construction

Architectural Coating - No construction

Vehicle Trips - Scaled trip rate to match VMT resulting from implementation of the Proposed Project.

Woodstoves - No woodstoves

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,520,536.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,561,607.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	3,232,845.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	9,698,535.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	13,950.00	0.00

tblConstructionPhase	NumDays	900.00	0.00
tblConstructionPhase	NumDays	1,395.00	0.00
tblConstructionPhase	NumDays	990.00	0.00
tblConstructionPhase	NumDays	540.00	0.00
tblConstructionPhase	PhaseEndDate	8/8/2090	10/22/2086
tblConstructionPhase	PhaseEndDate	1/5/2083	7/17/2029
tblConstructionPhase	PhaseEndDate	2/15/2022	9/4/2018
tblConstructionPhase	PhaseEndDate	7/17/2029	3/12/2024
tblConstructionPhase	PhaseEndDate	10/22/2086	1/5/2083
tblConstructionPhase	PhaseEndDate	3/12/2024	2/15/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	164
tblTripsAndVMT	VendorTripNumber	826.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,569.00	0.00
tblTripsAndVMT	WorkerTripNumber	514.00	0.00
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TL	7.30	7.20
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CC_TTP	48.00	100.00
tblVehicleTrips	CC_TTP	62.00	100.00
tblVehicleTrips	CC_TTP	64.40	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00

tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	33.00	0.00
tblVehicleTrips	CW_TTP	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TL	5.70	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TL	4.80	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TL	10.80	7.20
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	HW_TTP	31.00	100.00

tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	6.18
tblVehicleTrips	ST_TR	1.32	1.14
tblVehicleTrips	ST_TR	2.46	2.12
tblVehicleTrips	ST_TR	5.00	4.31
tblVehicleTrips	ST_TR	9.91	8.55
tblVehicleTrips	ST_TR	42.04	36.27
tblVehicleTrips	SU_TR	6.07	5.24
tblVehicleTrips	SU_TR	0.68	0.59
tblVehicleTrips	SU_TR	1.05	0.91
tblVehicleTrips	SU_TR	4.36	3.76
tblVehicleTrips	SU_TR	8.62	7.44
tblVehicleTrips	SU_TR	20.43	17.63

tblVehicleTrips	WD_TR	6.59	5.69
tblVehicleTrips	WD_TR	6.97	6.01
tblVehicleTrips	WD_TR	11.03	9.52
tblVehicleTrips	WD_TR	68.93	59.47
tblVehicleTrips	WD_TR	4.99	4.30
tblVehicleTrips	WD_TR	9.52	8.21
tblVehicleTrips	WD_TR	44.32	38.24
tblWoodstoves	NumberCatalytic	15.16	0.00
tblWoodstoves	NumberCatalytic	4.16	0.00
tblWoodstoves	NumberCatalytic	84.04	0.00
tblWoodstoves	NumberNoncatalytic	15.16	0.00
tblWoodstoves	NumberNoncatalytic	4.16	0.00
tblWoodstoves	NumberNoncatalytic	84.04	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Energy	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
Mobile	49.1831	415.0488	654.9297	3.5928	437.5576	1.5155	439.0731	116.9153	1.4145	118.3298		368,127.9406	368,127.9406	13.7146		368,470.8050
Total	**2,767.5106**	**492.3789**	**3,702.2914**	**8.2792**	**437.5576**	**385.9157**	**823.4733**	**116.9153**	**385.8148**	**502.7300**	**37,277.6610**	**426,072.1838**	**463,349.8448**	**15.2518**	**4.3432**	**465,025.3993**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Energy	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
Mobile	49.1831	415.0488	654.9297	3.5928	437.5576	1.5155	439.0731	116.9153	1.4145	118.3298		368,127.9406	368,127.9406	13.7146		368,470.8050
Total	**2,767.5106**	**492.3789**	**3,702.2914**	**8.2792**	**437.5576**	**385.9157**	**823.4733**	**116.9153**	**385.8148**	**502.7300**	**37,277.6610**	**426,072.1838**	**463,349.8448**	**15.2518**	**4.3432**	**465,025.3993**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/5/2018	9/4/2018	5	0	
2	Site Preparation	Site Preparation	2/16/2022	2/15/2022	5	0	
3	Grading	Grading	3/13/2024	3/12/2024	5	0	
4	Building Construction	Building Construction	7/18/2029	7/17/2029	5	0	
5	Paving	Paving	1/6/2083	1/5/2083	5	0	
6	Architectural Coating	Architectural Coating	10/23/2086	10/22/2086	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

StHelenaPlanningAreaBuildout - Napa County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	0	8.00	130	0.42
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	0	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2086

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	49.1831	415.0488	654.9297	3.5928	437.5576	1.5155	439.0731	116.9153	1.4145	118.3298		368,127.9406	368,127.9406	13.7146		368,470.8050
Unmitigated	49.1831	415.0488	654.9297	3.5928	437.5576	1.5155	439.0731	116.9153	1.4145	118.3298		368,127.9406	368,127.9406	13.7146		368,470.8050

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,313.02	4,684.44	3971.92	11,314,915	11,314,915
General Light Industry	8,680.36	1,646.52	852.15	17,185,143	17,185,143
General Office Building	6,479.60	1,442.94	619.37	12,901,935	12,901,935
Government Office Building	13,779.79	0.00	0.00	25,795,774	25,795,774
Mobile Home Park	894.40	896.48	782.08	2,302,770	2,302,770
Single Family Housing	17,249.21	17,963.55	15631.44	44,868,485	44,868,485
Strip Mall	26,171.88	24,823.59	12066.17	62,805,277	62,805,277
Total	77,568.26	51,457.52	33,923.13	177,174,298	177,174,298

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
General Light Industry	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
General Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Government Office Building	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0
Mobile Home Park	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Single Family Housing	7.20	0.00	0.00	100.00	0.00	0.00	100	0	0
Strip Mall	0.00	7.20	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Light Industry	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
General Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Government Office Building	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Mobile Home Park	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Single Family Housing	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556
Strip Mall	0.632746	0.030342	0.163267	0.091257	0.010061	0.004294	0.015559	0.040787	0.003923	0.001391	0.004851	0.000964	0.000556

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551
NaturalGas Unmitigated	3.7520	32.9437	20.1035	0.2047		2.5923	2.5923		2.5923	2.5923		40,931.3207	40,931.3207	0.7845	0.7504	41,174.5551

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21180.1	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	104387	1.1257	10.2340	8.5966	0.0614		0.7778	0.7778		0.7778	0.7778		12,280.7934	12,280.7934	0.2354	0.2252	12,353.7720
General Office Building	30525.8	0.3292	2.9927	2.5139	0.0180		0.2275	0.2275		0.2275	0.2275		3,591.2693	3,591.2693	0.0688	0.0658	3,612.6105
Government Office Building	10392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9684.16	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	4443.98	0.0479	0.4357	0.3660	2.6100e-003		0.0331	0.0331		0.0331	0.0331		522.8216	522.8216	0.0100	9.5900e-003	525.9285
Total		**3.7520**	**32.9437**	**20.1035**	**0.2047**		**2.5923**	**2.5923**		**2.5923**	**2.5923**		**40,931.3207**	**40,931.3207**	**0.7845**	**0.7504**	**41,174.5551**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	21.1801	0.2284	1.9519	0.8306	0.0125		0.1578	0.1578		0.1578	0.1578		2,491.7738	2,491.7738	0.0478	0.0457	2,506.5812
General Light Industry	104.387	1.1257	10.2340	8.5966	0.0614		0.7778	0.7778		0.7778	0.7778		12,280.7934	12,280.7934	0.2354	0.2252	12,353.7720
General Office Building	30.5258	0.3292	2.9927	2.5139	0.0180		0.2275	0.2275		0.2275	0.2275		3,591.2693	3,591.2693	0.0688	0.0658	3,612.6105
Government Office Building	10.392	0.1121	1.0188	0.8558	6.1100e-003		0.0774	0.0774		0.0774	0.0774		1,222.5923	1,222.5923	0.0234	0.0224	1,229.8576
Mobile Home Park	9.68416	0.1044	0.8925	0.3798	5.7000e-003		0.0722	0.0722		0.0722	0.0722		1,139.3130	1,139.3130	0.0218	0.0209	1,146.0834
Single Family Housing	167.303	1.8043	15.4182	6.5609	0.0984		1.2466	1.2466		1.2466	1.2466		19,682.7572	19,682.7572	0.3773	0.3609	19,799.7219
Strip Mall	4.44398	0.0479	0.4357	0.3660	2.6100e-003		0.0331	0.0331		0.0331	0.0331		522.8216	522.8216	0.0100	9.5900e-003	525.9285
Total		**3.7520**	**32.9437**	**20.1035**	**0.2047**		**2.5923**	**2.5923**		**2.5923**	**2.5923**		**40,931.3207**	**40,931.3207**	**0.7845**	**0.7504**	**41,174.5551**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392
Unmitigated	2,714.5755	44.3864	3,027.2582	4.4818		381.8079	381.8079		381.8079	381.8079	37,277.6610	17,012.9225	54,290.5836	0.7527	3.5927	55,380.0392

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	27.1626					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	167.5721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5629	2.9106	252.2283	0.0134		1.4043	1.4043		1.4043	1.4043		456.2755	456.2755	0.4354		467.1600
Total	**2,714.5755**	**44.3864**	**3,027.2582**	**4.4818**		**381.8079**	**381.8079**		**381.8079**	**381.8079**	**37,277.6610**	**17,012.9225**	**54,290.5836**	**0.7527**	**3.5927**	**55,380.0392**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	27.1626					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	167.5721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	2,512.2778	41.4758	2,775.0298	4.4684		380.4036	380.4036		380.4036	380.4036	37,277.6610	16,556.6471	53,834.3081	0.3173	3.5927	54,912.8792
Landscaping	7.5629	2.9106	252.2283	0.0134		1.4043	1.4043		1.4043	1.4043		456.2755	456.2755	0.4354		467.1600
Total	**2,714.5755**	**44.3864**	**3,027.2582**	**4.4818**		**381.8079**	**381.8079**		**381.8079**	**381.8079**	**37,277.6610**	**17,012.9225**	**54,290.5836**	**0.7527**	**3.5927**	**55,380.0392**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix F: List of Historic Resources

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Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
Burn & Wise Cellars, Greystone Cellars	2555 Main St	L	L	L	
Charles Krug Winery	2800 Main st	L	L	L	
Special Internal Revenue Bonded Warehouse	1216 Church St	L		L	
William Tell Saloon and Hotel	1228 Spring St	L		L	HC
St. Helena Catholic Church	1255 Oak St	L		L	
Taylor Duckworth and Company Foundry Building	1345 Railroad Ave	L		L	HC
St Helena Public Library	1360 Oak St	L		L	
Crane-Ramos Sherry Factory	1468 Railroad Ave	L		L	
Beringer Brothers/Los Hermanos Winery	2000 Main St	L		L	
Rhine House/Frederick Beringer	2000 Main St	L		L	BW
Greystone Cellars/Christian Brothers	2555 Main St	L		L	
St Helena High School/Vintage Hall	437 Main St	L		L	
St. Helena Historic Commercial District	Main St	L		L	
Pope Street Bridge/21C-109	Pope St	L		L	
Saint Helena Southern Pacific Railroad	Railroad Ave	L		L	
Saint Helena Ranger Unit Headquarters	1572 Railroad Ave	E	E		
Frank Sciaronis Winery & Distillery	1050 Charter Oak Ave	E		L	
John Money's Planing Mill	1057 Main St	E		L	
Noble Building, Galleron Building	1200 Main St	E		L	HC
A. Goodman Building	1201 Main St	E		L	HC
Alexander Court	1207 Alexander Ct	E		L	
Frank L. Alexander House	1207 Alexander Ct	E		L	
David Building, Little Dress Factory	1231 Main St	E		L	HC
C.D. Mooney House	1269 Allyn Ave	E		L	
	1279 Allyn Ave	E		L	
Hunt Building	1302 Main St	E		L	HC
Windsor Hotel, Hotel St Helena	1305 Main St	E		L	HC
United Methodist Church of St Helena	1310 Adams St	E		L	
St Helena Native Sons of the Golden...	1313 Spring St	E		L	
Dowdell House	1317 Allyn Ave	E		L	
St Helena Elementary School	1325 Adams St	E		L	
Richie Block	1327 Main St	E		L	HC
St. Helena Star Building	1328 Main St	E		L	HC
St. Helena Ioof Hall/Odd Fellows	1352 Main St	E		L	HC
KettleWell Building, Vasconis Phar.	1381 Main St	E		L	
George Schonewald Estate	1401 Hudson Ave	E		L	
Walter Metzner House	1407 Kearney St	E		L	
First Presbyterian Church of St Helena	1420 Spring St	E		L	
Klubescheidt House	1445 Oak St	E		L	
A.N. Bell House, Stralla House	1459 Kearney St	E		L	
Dr. Davis House	1467 Oak St	E		L	
Greenfield House	1508 Main St	E		L	
Shy House	1542 Spring St	E		L	
Willian Bell House, Clark House	1605 Spring Mountain Rd	E		L	
George W. Schmidt House	1611 Adams St	E		L	
Gus Jursch House	1637 Spring Mountain Rd	E		L	
Mackinder - Baldwin House	1651 Spring Mountain Rd	E		L	
Fuller House	1817 Main St	E		L	
Fuller Place Tankhouse	1817 Main St	E		L	
Kraft House and Wine Cellar	1902 Madrona Ave	E		L	
Vann-Anderson House, St. Gothard's	1915 Main St	E		L	
Elm Alley	2000 Main St	E		L	BW
Hudson House	2000 Main St	E		L	BW
Dr. George Belden Crane House	397 Main St	E		L	
James Dowdell House	415 Dowdell Lane	E		L	
Mixon House	835 Mccorckle Ave	E		L	

Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
	921 Hunt Ave	E		L	
Jacob Meily Winery, Signorelli Pla.	924 Pope St	E		L	
D.O. Hunt house	957 Hunt Ave	E		L	
	967 Charter Oak Ave	E		L	
E York Wine Cellar	1095 Lodi Lane	E			
York Alexander House, Casa Robles	1105 Lodi Lane	E			
Wheeler House, Mill Mar Ranch	1445 SR 29	E			
Site of Turner Hall, Lyman Park	1498 Main St	E			
Spring Valley School	1796 Silverado Trail	E			
Lewelling House	2093 Sulphur Springs Ave	E			
Mrs W B Bourn House, Madrono	2233 Sulphur Springs Ave	E			
John Thomann House / Chalet...	225 St Helena Hwy	E			
Edge Hill Carriage House	2727 Sulphur Springs Ave	E			
Edge Hill Stables	2727 Sulphur Springs Ave	E			
F Rosenbaum House/Johannaberg Vineyards	2867 SR 29	E			
Melrose Farm	493 Zinfandel lane	E			
Asa White House, White Ranch	707 White Lane	E			
Ives House, Bellani House	738 Main St	E			
Napa Valley Olive Oil Manufactory	835 Charter Oak Ave	E			
Lodi School, lodi Farm Center	Lodi Lane	E			
Main Street Electrolaires	Main St	E			
Rutherford School, Caymus School	SR 29	E			
Zinfandel Bridge	Zinfandel Lane	E			
Bank of St Helena, Pastime Bar	1351 Main St		L	L	HC
Ranger's Residence	1572 Railroad Ave		L		
Kraft Wine Cellar	1902 Madrona Ave		L		
Edge Hill Distillery, Edge Hill	2585 Sulphur Springs Ave		L		
	0000 Alexander Court			L	
	1000 Hunt Avenue			L	
	1000 Main Street			L	
	1006 Pope Street			L	
	1012 Pope Street			L	
	1017 Charter Oak Avenue			L	
	1017 Pope Street			L	
	1024 Pope Street			L	
	1025 Allison Avenue			L	
	1028 Main Street			L	
	1034 Pope Street			L	
	1102 Edwards Street			L	
Pritchard Building	1104 Adams St			L	HC
	1114 Church Street			L	
	1125 Pope Street			L	
	1132 Church Street			L	
	1133 Edwards St			L	
	1136 Edwards Street			L	
	1160 Edwards Street			L	
	1161, 1153 Edwards Street			L	
A. Goodman Building	1205 Main St			L	HC
	1212 Edwards Street			L	
Ivy Loeber House	1217 Edwards St			L	
	1218 Main Street			L	
	1219 Main St			L	HC
	1220 Edwards Street			L	
	1220 Madrona Street			L	
	1227 Edwards Street			L	
Site of David Fulton's Saddlery	1230 Main St			L	

Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
	1230 Stockton Street			L	
	1234 Madrona Street			L	
	1235 Main St			L	HC
	1243 Main Street			L	
	1244 Spring Street			L	
	1248 Stockton Street			L	
	1252 Allyn Avenue			L	
	1257 Stockton Street			L	
	1277 St. Helena Hwy. S.			L	
American Legion Post	1291 Madrona Street			L	
	1305 Stockton Street			L	
Grace Church, Grace Episcopal Church	1314 Spring St			L	
	1322 Hudson Avenue			L	
	1326 Oak Avenue			L	
Roma Hotel/Miramonte Hotel	1327 Railroad Avenue			L	
	1329 Pine Street			L	
	1329-1321 Allyn Avenue			L	
	1330 Allyn Avenue			L	
	1330 Pine Street			L	
	1331 Stockton Street			L	
	1337 Allyn Avenue			L	
	1340 Pine Street			L	
St. Helena Catholic Church	1340 Tainter Street			L	
	1341 Madrona Street			L	
Chiles House, First Baptist Church	1343 Spring St			L	
Owen Wade Building/Smiths Pharmacy	1347 Main St			L	HC
	1354 Pine Street			L	
	1362 Stockton Street			L	
	1367 Main St			L	HC
	1375 Main Street			L	
	1380 Main St			L	HC
	1410 Adams Street			L	
	1413 Tainter Street			L	
Wall House	1414 Main St			L	
	1417 Kearney Street			L	
	1420 Stockton Street			L	
	1421 Tainter Street			L	
	1426 Kearney Street			L	
	1427 Kearney Street			L	
	1439 Kearney Street			L	
	1451 Library Lane			L	
	1454, 1455 Oak Avenue			L	
	1457 Stockton Street			L	
St. Helena Post Office	1461 Main St			L	
	1467 Kearney Street			L	
Johnsons Depot Saloon, Babes Place	1478 Railroad Ave			L	
	1489 Kearney Street			L	
	1505 Kearney Street			L	
	1508 Spring Street			L	
	1509 Tainter Street			L	
	1512 Hudson Avenue			L	
	1513 Madrona Street			L	
	1515 Main Street			L	
	1518 Adams Street			L	
	1523 Madrona Street			L	
	1523 Main Street			L	

Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
	1523 Spring Street			L	
Tilley House	1526 Spring St			L	
	1530 Kearney Street			L	
Boy Scout Hall	1530 Railroad Ave			L	
	1531 Spring St			L	
	1537 Main Street			L	
	1543 Kearney Street			L	
	1545, 1549, 1553 Madrona Street			L	
	1547 Main Street			L	
	1548 Madrona Street			L	
	1549 St. Helena Hwy. S			L	
	1550 & 1558 Main Street			L	
	1550 Railraod Avenue			L	
A. Forni House	1551 Oak St			L	
	1551 Spring Street			L	
	1552 Adams Street			L	
	1556 Allyn Avenue			L	
	1556 Tainter Street			L	
	1570 Main Street			L	
	1603 Main Street			L	
	1615 Main Street			L	
	1623 Spring Mountain Road			L	
	1629 Main Street			L	
	1635 Main Street			L	
	1635 Spring Street			L	
	1657 Stockton Street			L	
	1702 Madrona Street			L	
	1706 Adams Street			L	
Martinelli House	1709 Spring Mountain Rd			L	
John Kelly House, John Mitchell	1735 Spring St			L	
	1758, 1764 Spring Street			L	
	1761 Stockton Street			L	
Schweinitzer House and Winery	1817 Spring St			L	
Vance-Anderson House/St. Gothard's Inn	1830 & 1846 Main Street			L	
Red cottage/Charlotte Chase Starr House	1832 Sulphur Springs Avenue			L	
	1855 Main Street			L	
Kraft House	1902 Madrona Ave			L	
	1933 Spring Street			L	
Methodist church Parsonage	1944 Spring St			L	
	195 Main Street			L	
Beringer Winery	2000 Main Street			L	
Beringer Winery - Sisters' House	2000 Main Street			L	
Dean York House	2070 Dean York Lane			L	
	21 Silverado Trail			L	
	222 Pope Street			L	
White cottage/Captain Chase House	2252 Sulphur Springs Avenue			L	
	2610 Sulphur Springs Avenue			L	
	330 Pratt Avenue			L	
	376 Pratt Avenue			L	
	458 Mills Lane			L	
	514 Pratt Avenue			L	
	609 McCorkle Avenue			L	
	681 McCorkle Avenue			L	
	741 Chart Oak Avenue			L	
	825 Allison Avenue			L	
	825 Fulton Lane			L	

Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
	831 Charter Oak Avenue			L	
	834 Pope Street			L	
	849 Charter Oak Avenue			L	
	850 Hunt Avenue			L	
	855 Pratt Avenue			L	
	905 Charter Oak Avenue			L	
	910 Allison Avenue			L	
	916 Hunt Avenue			L	
	917 Allison Avenue			L	
	917 Charter Oak Avenue			L	
	931 Charter Oak Avenue			L	
	933 Main Street			L	
	940 Hunt Avenue			L	
	943 Charter Oak Avenue			L	
	943 Pope Street			L	
	945 Brown St			L	
	951 Pope Street			L	
	957 Charter Oak Ave			L	
	957A Brown St			L	
	957B Brown St			L	
Vista	Alley-Adams Street			L	
Fountain Winery	Dowdell Lane			L	
Alley view of backs of stone and brick commercial buidlings on Main Steet	Money Way Vista			L	
Stone warehouse/Bell Bros. Warehouse	Money Way Vista			L	
	N.E. Corner Oak Street			L	
Spring Mountain Road over York Creek	Near Spring Mountain Road and Dean York Lane			L	
	Oak @ Corner Tainter			L	
Barn	Pine between Stockton & Kearney			L	
Bridge 21C-110	Pope St			L	
Stone Bridge Saloon Site	Pope St at Silverado Trail			L	
	Pope Street Bend & Stone Bridge-View East			L	
G.L. Pratt House	Pratt Avenue			L	
Bridge 21C-113	Spring Mountain Rd			L	
Lewelling Winery	Spring Street			L	
St. Helena Public Cemetary	Spring Street			L	
Bridge #21-16, Sulphur Creek Bridge	SR 29			L	
Church of St. Helena Rectory	Tainter near Oak			L	
South toward St. Helena Elementary School	Vista Tainter			L	
Alberts Rock Wall				L	
HMS Vineyards Historic Stone Wall				L	
Lewelling "Deermount" Ranch		L		L	LDR
Meadowood Historic Road/Path				L	
Terraced Old Olive Orchard				L	
	1225 Adams St				HC
	1225 Main St				HC
	1226 Spring St				HC
	1269 Main St				HC
	1310 Main St				HC
	1310 Oak Ave				HC
	1312 Main St				HC
	1313 Main St				HC
	1316 Main St				HC
	1320 Main St				HC

Name	Address/Location	National Register	California Register	Locally Designated	Contributor to a Historic District
	1321 Railroad Ave				HC
	1332 Main St				HC
	1339 Main St				HC
	1346 Main St				HC
	1350 Main St				HC
	1355 Main St				HC
	1371 Main St				HC
	1379 Main St				HC
Beringer Winery Circulation Routes	2000 Main St				BW
Beringer Winery Stone Wall	2000 Main St				BW
Distillery Building	2000 Main St				BW
Export Bulding	2000 Main St				BW
North House	2000 Main St				BW
Old Winery	2000 Main St				BW
Sherry Shack Complex	2000 Main St				BW
Tour Center	2000 Main St				BW

Key
E = Eligible
L = Listed
BW = Beringer Winery Historic District
HC = St. Helena Historic Commerical District
LDR = Lewelling "Deermount" Ranch
Red = Unable to locate

Appendix G: Greenhouse Gas Inventory Methodology

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Estimating Emissions by Sector for 2018 and 2040

The following methodology was utilized to compile the baseline (2018) and buildout (2040) greenhouse gas (GHG) inventories for the City of St. Helena General Plan Update EIR. The methodology is organized by emissions sector and year.

RESIDENTIAL

Electricity

Baseline (2018)

Baseline residential emissions were calculated using the kilowatt hours (kWh) of electricity consumed by residential customers in the City's 2010 GHG inventory. While additional homes have been constructed between 2010 and 2018, the increase in electricity-consumption from new residential units is assumed to be balanced out by energy efficiency improvements and solar installations since 2010.

Since the 2010 GHG inventory, St. Helena, along with Napa County, joined Marin Clean Energy (MCE), a community choice aggregation (CCA) program. According to MCE's 2018 Integrated Resource Plan, there is an approximately 89 percent participation rate in St. Helena. This means that approximately 11 percent of St. Helena residents still purchase electricity through PG&E. Emissions from PG&E electricity were calculated using the renewable energy percentage of the power mix and the CO2e emissions factor from 2016 (the most recent year available). Emissions from MCE electricity were calculated using MCE's renewable energy percentage and emissions factor from 2015 (the most recent year available). To estimate emissions from residential electricity usage, the kWh from 2010 were weighted with 89 percent of the emissions from MCE and 11 percent from PG&E, to reflect the approximate portion of the population being served by each utility provider.

Buildout (2040)

Electricity consumption in kWh was projected based on the number of residential units expected in buildout of the Proposed Plan, and adjusted for Title 24 energy efficiency improvements.

Residential electricity emissions for 2040 buildout were projected using 50 percent renewable energy as set out in the State's Renewable Portfolio Standard (RPS) for PG&E and 80 percent renewable energy for MCE, as set out in the 2018 Integrated Resource Plan. These renewable energy percentages were multiplied by the average CO2e emissions factor for each utility. The same participation rate of 89 percent was assumed for MCE customers.

Natural Gas

Baseline (2018)

Natural gas usage was estimated using the therms consumed in the 2010 GHG inventory. Emissions were estimated using Appendix C of ICLEI's U.S. Community Protocol emissions factors.

Buildout (2040)

Natural gas usage for 2040 was projected by scaling the 2010 usage with the number of residential units added under the Proposed Plan. This usage was adjusted for efficiency improvements expected under Title 24. Emissions from natural gas consumption were calculated using Appendix C of ICLEI's U.S. Community Protocol emissions factors.

Other Fuels

Baseline (2018)

The City of St. Helena 2010 inventory includes "other fuels" which include biomass burned for electricity consumption. The same emissions from 2010 were assumed for 2018 as no updated information was available.

Buildout (2040)

The increase in emissions for other fuels was calculated by scaling the baseline emissions for the projected increased in residential units under the Proposed Plan.

COMMERCIAL/INDUSTRIAL

Commercial and industrial emissions were aggregated in the 2010 GHG inventory due to the 15/15 rule. For privacy reasons, emissions are aggregated under the 15/15 rule when there are fewer than 15 customers in one sector or one customer makes up greater than 15 percent of the usage in a sector. Since commercial and industrial emissions were aggregated for 2010, they were also aggregated for the 2018 baseline and 2040 buildout inventories.

It should be noted that the St. Helena Community 2010 GHG inventory included electricity usage from water and wastewater in the commercial/industrial sector. Based on the electricity usage for water and wastewater provided in St. Helena's Municipal 2010 GHG inventory, the kWh for water and wastewater were subtracted from commercial/industrial and included as their own sector for the 2018 baseline and 2040 buildout inventories.

Electricity

Baseline (2018)

Baseline commercial/industrial electricity usage was estimated using the kWh consumed in the 2010 inventory, minus the water and wastewater consumption as described above. Emissions were calculated using PG&E's and MCE's renewable energy and emissions factors. The same MCE participation rate of 89 percent was assumed for commercial/industrial as residential to create a weighted number for total GHG emissions from commercial/industrial electricity usage.

Buildout (2040)

The commercial/industrial electricity emissions methodology was similar to that for residential. The baseline usage was scaled for 2040 based on the addition 1,000 square feet of nonresidential development projected in the Proposed Plan and adjusted for Title 24 energy efficiency improvements. The usage was then multiplied by emissions factors using projected PG&E and MCE renewable energy percentages and emissions factors.

Natural Gas

Baseline (2018)

Baseline natural gas emissions were calculated by multiplying the therms consumed in the 2010 GHG inventory by Appendix C of ICLEI's U.S. Community Protocol emissions factors.

Buildout (2040)

Natural gas usage for 2040 was calculated by scaling the baseline therms consumed for the additional 1,000 square feet of commercial/industrial development expected under the Proposed Plan and adjusted for Title 24 efficiency improvements. Emissions were then calculated using Appendix C of ICLEI's U.S. Community Protocol emissions factors.

Other Fuels

Baseline (2018)

The City of St. Helena 2010 inventory includes "other fuels" which include biomass burned for electricity consumption. The same emissions from 2010 were assumed for 2018 as no updated information was available.

Buildout (2040)

The increase in emissions for other fuels was calculated by scaling the baseline emissions for the projected increase in 1,000 square feet of commercial/industrial buildings under the Proposed Plan.

TRANSPORTATION

Baseline (2018)

Baseline transportation emissions were calculated using the daily vehicle miles traveled (VMT) provided by Fehr & Peers using the shared accounting method. The shared accounting method includes all trips that both begin and end within the City of St. Helena plus 50 percent of the trips that begin or end within the city. VMT was scaled from daily to yearly and emissions were calculated using the California Air Resources Board (CARB) Emissions Factor (EMFAC) model for the year 2018 in Napa County. This process was used to calculate CO2 emissions from diesel and gasoline vehicles. The EMFAC model was also utilized to scale VMT for fuel type (diesel, gasoline, and electric). It was assumed that electric vehicles produce no GHG emissions from operation, though would consume electricity from charging that would be captured under residential and/or commercial/industrial electricity usage.

Emissions for methane (CH4) and nitrous oxide (N2O) were estimated for diesel and gasoline vehicles utilizing the model and vehicle type from the EMFAC model, VMT data, and Control Technology Assignments for On-Road Vehicles and Motorcycles from the Environmental Protection Agency (EPA). CH4 and N2O emissions were then converted to CO2e.

Buildout (2040)

Transportation emissions for 2040 were calculated utilizing the same methodology as 2018, except using the 2040 VMT provided by Fehr & Peers and the 2040 EMFAC model.

SOLID WASTE

Baseline (2018)

CalRecycle's 2014 Waste Characterization Study for St. Helena was used to gather residential and commercial tonnages of solid waste, as well as the percent of the waste stream made up by biodegradable materials that produce CH4 as they decompose. Emissions were then calculated using the EPA's Waste Reduction Model (WARM) Version 14.

Buildout (2040)

Solid waste emissions were projected for 2040 by scaling the baseline emissions for growth in residential units for residential solid waste and for 1,000 square feet of commercial/industrial buildings for commercial solid waste predicted under the Proposed Plan. Factored into the emissions for 2040 was also the assumption that the State's goal of achieving 75 percent diversion of solid waste would be achieved.

WATER TRANSPORT, DISTRIBUTION, AND TREATMENT

Emissions from water transport, distribution, and treatment are a result of electricity needed to circulate and treat water.

Baseline (2018)

The electricity consumed to transport, distribute, and treat water was assumed to be equivalent to that provided in the City of St. Helena's 2010 Municipal GHG inventory. To convert the kWh of electricity to emissions, the renewable energy and emissions factors of MCE were used. Since the City is an MCE customer, PG&E's energy mix was not applied.

Buildout (2040)

Water consumption was assumed to be capped at 1,950 acre-feet (AF) per year according to the City's water supply plans and Proposed Plan Policy PF1.J. While water demand may be higher than 1,950 AF per year in 2040 based on population growth under the Proposed Plan, this has been determined the safe-yield amount for the city. Additional water consumed by St. Helena would have to be imported from other sources. Electricity needed to transport, distribute, and treat 1,950 AF per year of water was scaled from the baseline kWh. Emissions were then calculated using the projected 2040 emissions factor and renewable energy percentages from MCE.

WASTEWATER

Electricity

Baseline (2018)

St. Helena's 2010 Municipal GHG inventory provides the gallons of wastewater treated in the City. Given limited population growth between 2010 and 2018, it was assumed that the same volume of wastewater was treated under the baseline scenario. Electricity from treating this wastewater was calculated using the default values from the California Energy Commission's (CEC) Estimates of Water-Related Energy Use in California. Emissions from the consumption of energy were calculated using MCE's renewable energy and emissions factors.

Buildout (2040)

Wastewater volume was projected for 2040 by assuming the same growth rate for wastewater as potable water. Electricity consumption and emissions were then calculated using the same methodology as baseline emissions.

Septic Tanks

Baseline (2018)

The number of septic tanks in the City of St. Helena were estimated using the Napa County Assessor's Parcel Data, which has a code for parcels served by the city's sewage system and those that are not. It was assumed that each parcel not connected to the city sewer system that has a building on it has one septic tank. The population served by septic systems was then estimated by multiplying the number of septic tanks by the average household population with the city. Emissions from septic tanks was then estimated using standard factors within Appendix F of ICLEI's U.S. Community Protocol.

Building (2040)

The number of septic tanks in 2040 was estimated by scaling the baseline number for population growth under the Proposed Plan. Emissions were then calculated using the same methodology as baseline emissions.

Effluent

Baseline (2018)

Effluent emissions were estimated using the 2018 population for the City of St. Helena and standard factors in Appendix F of ICLEI's U.S. Community Protocol.

Buildout (2040)

Effluent emissions for buildout were projected using the 2040 population under the Proposed Plan and the same methodology as baseline emissions.

OFF-ROAD EQUIPMENT

Baseline (2018)

Baseline off-road equipment emissions were calculated using CARB's 2018 off-road emissions model for Napa County and scaling for St. Helena using the percentage of Napa County's 2018 population within the City of St. Helena.

Buildout (2040)

Off-road emissions for 2040 were calculated CARB's 2040 off-road emissions model for Napa County and scaling for St. Helena using the percentage of Napa County's projected 2040 population within the City of St. Helena.

PUBLIC LIGHTING

Baseline (2018)

Electricity consumption in kWh from public lighting, which includes street lights and park lighting, was included in the City of St. Helena's 2010 municipal inventory. Assuming the same consumption as 2010, baseline emissions were calculated using MCE's renewable energy and emissions factors.

Buildout (2040)

Electricity consumption for public lighting in 2040 was scaled for the projected increase in population under the Proposed Plan. Emissions were then calculated using the projected renewable energy percentages and emissions factors for MCE.

AGRICULTURE

Agricultural emissions from fertilizer and off-road equipment were provided in the St. Helena 2010 Community GHG Inventory. Since the baseline inventory includes off-road equipment as its own sector, only emissions from fertilizer were in included in the agriculture sector.

Baseline (2018)

For baseline agricultural emissions, it was assumed that the acres of agricultural uses in St. Helena remained constant between 2010 and 2018, and therefore the emissions remained the same as well.

Buildout (2040)

To project 2040 emissions from agriculture, first the emissions from fertilizer application provided in the 2010 inventory was divided by the number of acres to get emissions per acre. The emissions per acre were then multiplied by the number of acres of designated as agriculture in the Proposed Plan.

Estimating Emissions for 2030

Where possible, emissions were also projected for the year 2030 to assess consistency with Executive Order B-30-15, which set an interim State GHG emissions reduction target of 40 percent below 1990 levels by 2030. If 2030 data was available (i.e. population, housing units), GHG emissions for 2030 was estimated utilizing the same methodology as the buildout year of 2040. If 2030 data was not available (i.e. land use, service population), emissions were estimated by assuming a linear increase in emissions between 2018 and 2040.

Appendix H: City of St. Helena General Plan 2030: Background Transportation Report (2009)

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FEHR & PEERS
TRANSPORTATION CONSULTANTS

CITY OF ST. HELENA
GENERAL PLAN 2030
TRANSPORTATION ELEMENT UPDATE
BACKGROUND REPORT

Prepared for:

The City of St. Helena
M.I.G.

November 2009

SF08-0419

H-1

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INTRODUCTION

The City of St. Helena is undergoing a General Plan update led by M.I.G. Fehr & Peers is providing support for the Transportation Element of the Plan. This report provides an overview of existing transportation conditions, issues and opportunities in St. Helena. The description of motor vehicle conditions includes an analysis of traffic operations, interregional travel patterns, truck traffic, traffic calming and parking policies. An overview of public transit service, bicycle and pedestrian circulation is also provided.

Transportation System

St. Helena is centrally located within the Napa Valley, 65 miles north of San Francisco. The city is approximately five square miles with a population of approximately 6,000 in 2007. St. Helena serves many roles within Napa County. Functioning as a rural agricultural center at its inception, the city has become an important business and banking center for the surrounding area, particularly the local wine industry. The city's central location in the Napa Valley attracts winery tourists and outdoor recreation visitors. A main goal of the City is to maintain a small-town atmosphere and to provide quality services to its residents.

State Route 29 (SR-29) serves as the main north-south highway through the Napa Valley and serves as St. Helena's Main Street. While the city's limits extend to the Silverado Trail to the northeast, most of the city has developed to the southwest of SR-29/Main Street. Older residential neighborhoods surrounding the downtown area are on a grid street network, while areas towards the outer edges of the city have a more rural character. Figure 1 illustrates the city street system, city limits and surrounding area.

The existing transportation infrastructure and compact development pattern enables St. Helena to remain a relatively walkable city in a predominantly rural area while providing direct access to regional destinations throughout the Napa Valley. However, key constraints include congestion along SR-29/Main Street, resulting traffic impacts on surrounding residential neighborhoods, and regional land use patterns that are not conducive to efficient mass transit service. The St. Helena VINE Shuttle provides intra-city service during weekday business hours, and VINE Transit provides two regional bus routes to St. Helena. No commuter rail service exists in St. Helena, although the Napa Valley Wine Train is a tourist rail service that brings passengers from the city of Napa through St. Helena without opportunities for disembarking.

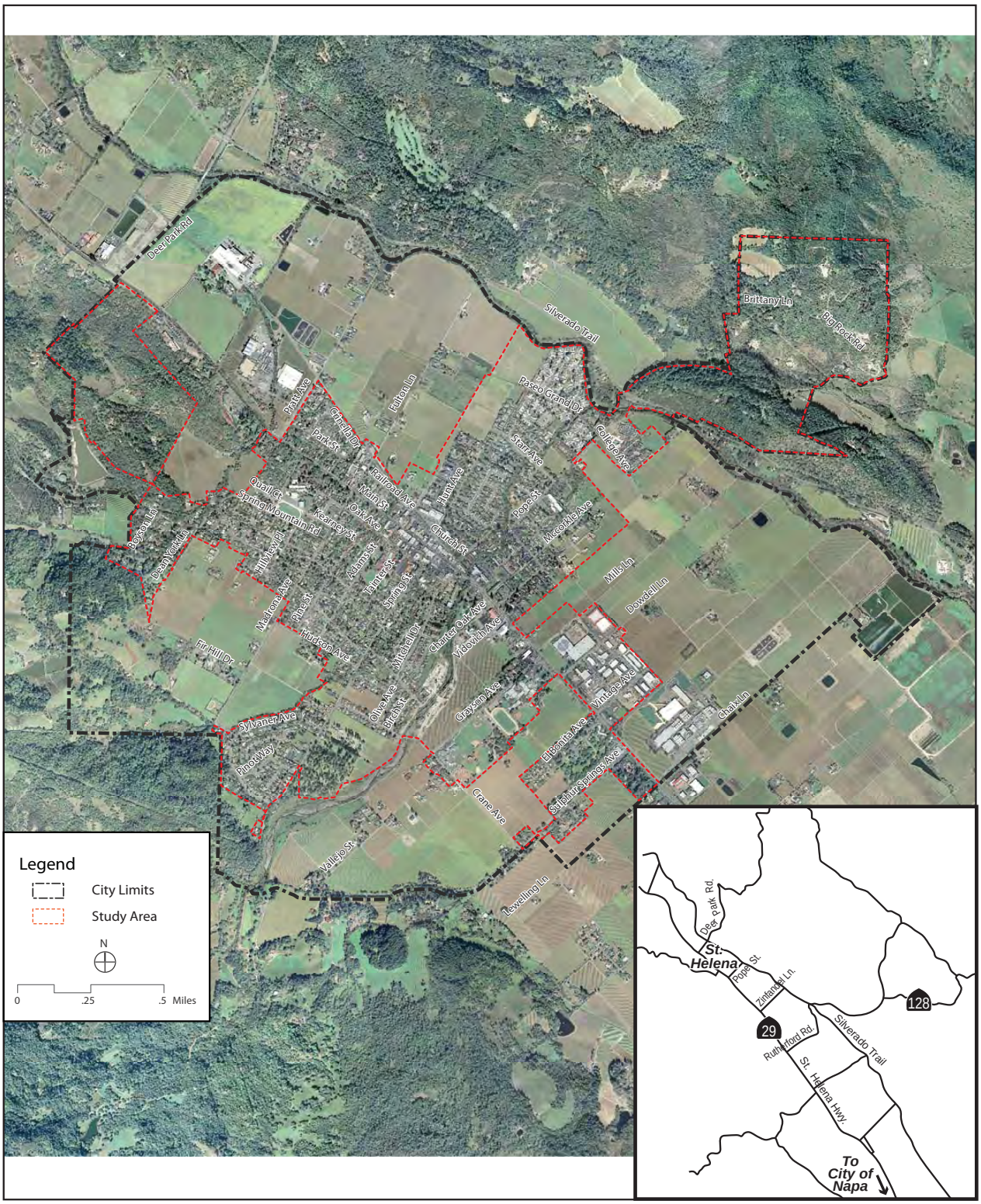
St. Helena is a walkable city, particularly within the historic downtown area. A mix of land uses, short block lengths, good sidewalk connectivity and streetscape enhancements provide for an excellent walking environment. Although the City does not have a developed bicycle network, the area is a popular destination for recreational cyclists. Future improvements to the walking and bicycling environment will help to reduce single-occupancy trips by facilitating more non-motorized travel.

Key Highlights

Increasingly, the City of St. Helena and Napa County have expressed the goal of mitigating traffic congestion in the region by encouraging the development of a multimodal transportation network supported by land use decisions that encourage alternatives to single occupancy vehicle trips. To this end, the key strategies for sustainable transportation identified in this report include the following:

- The development of a **Transportation Demand Management** Program
- **Improved Transportation Measures**, such as multimodal Level of Service standards
- The adoption of a **Parking Management Program**
- Inclusion of a **Climate Action Plan** within the General Plan update
- Consideration of **Neighborhood Electric Vehicles** for use on the local street network

In addition, opportunities to enhance transit, bicycle and pedestrian facilities are identified, as well as ways to meet transportation needs related to changing demographics, travel patterns and tourism.



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2009
SF08-0419\graphics\0419-1

St. Helena General Plan

STUDY AREA MAP OF ST. HELENA AND SURROUNDING AREA

H-7
FIGURE 1

Regional Travel Patterns

Journey-to-Work Data

The 1990 and 2000 U.S. Census provides Journey to Work data that indicates the mode of travel to and from work for St. Helena residents. As shown by Table 1, in 2000 approximately 69 percent of St. Helena's residents drove alone to work (slightly lower than the countywide average of 73 percent), while 13 percent carpooled to work (also slightly lower than the countywide average of 15 percent).

Carpooling significantly increased in St. Helena between 1990 and 2000, from 7.5 percent to 13.1 percent. Meanwhile, bicycling decreased from 1.3 percent to 0.3 percent over the same period. In addition, St. Helena has a significantly higher walking rate as compared to the County.

TABLE 1
JOURNEY TO WORK BY MODE OF TRAVEL

	St. Helena		Napa County	
Mode	**1990**	**2000**	**1990**	**2000**
Drove alone	74.8%	69.2%	75.2%	72.7%
Carpooled	7.5%	13.1%	12.8%	14.8%
Transit	0.0%	1.3%	1%	1.4%
Bicycle	1.3%	0.3%	1.2%	0.2%
Motorcycle	1.6%	0.0%	0.3%	0.8%
Walked	8.4%	7.2%	5.1%	4.1%
Other means	0.4%	0.9%	0.7%	0.8%
Worked at home	5.7%	8.0%	3.7%	5.1%

Source: U.S. Census Bureau
Census 1990, 2000

Commute Origin and Destination Patterns

Origin and destination data from the 2000 Census provides information on where St. Helena residents are commuting to, and where people working in St. Helena are commuting from. As shown in Table 2, approximately half of St. Helena's employed residents work within the City, and close to half travel to other destinations within Napa County. Very few St. Helena residents commute to destinations outside of Napa County.

As shown in Table 3, 23 percent of St. Helena's workforce live within the City, and 28 percent commute from the City of Napa. Another 22 percent commute from other places in Napa County, with only a small percentage of workers commuting from outside the county.

According to this data, many more workers are commuting into St. Helena than are living within the City, suggesting a high jobs/housing balance. Jobs/housing balance is a measure of the equilibrium between employment and residential units in a specific area. A balanced ratio between jobs and housing can reduce travel times and traffic congestion in a given area.

TABLE 2
DESTINATIONS FOR WORKERS LIVING IN ST. HELENA

Origin	Destination	Number of Total Workers	Percentage of Total Workers
St. Helena	St. Helena	1,170	43%
St. Helena	Napa	300	11%
St. Helena	Calistoga	80	3%
St. Helena	Yountville	70	3%
St. Helena	Remainder of Napa County	780	29%
St. Helena	Sonoma County	88	3%
St. Helena	Alameda County	64	2%
St. Helena	Work Elsewhere in California	151	6%
	Total	***2,703***	

Source: U.S. Census Bureau
Census 2000

TABLE 3
ORIGIN OF WORKERS TRAVELING TO ST. HELENA FOR WORK

Origin	Destination	Number of Total Workers	Percentage of Total Workers
Napa	St. Helena	1,410	28%
St. Helena	St. Helena	1,170	23%
Calistoga	St. Helena	245	5%
Angwin	St. Helena	165	3%
Yountville	St. Helena	85	2%
Remainder of Napa County	St. Helena	1,110	22%
Lake County	St. Helena	185	4%
Sonoma County	St. Helena	263	5%
Solano County	St. Helena	180	4%
Living Elsewhere in California	St. Helena	230	5%
	Total	***5,043***	

Source: U.S. Census Bureau
Census 2000

EXISTING TRANSPORTATION SYSTEM

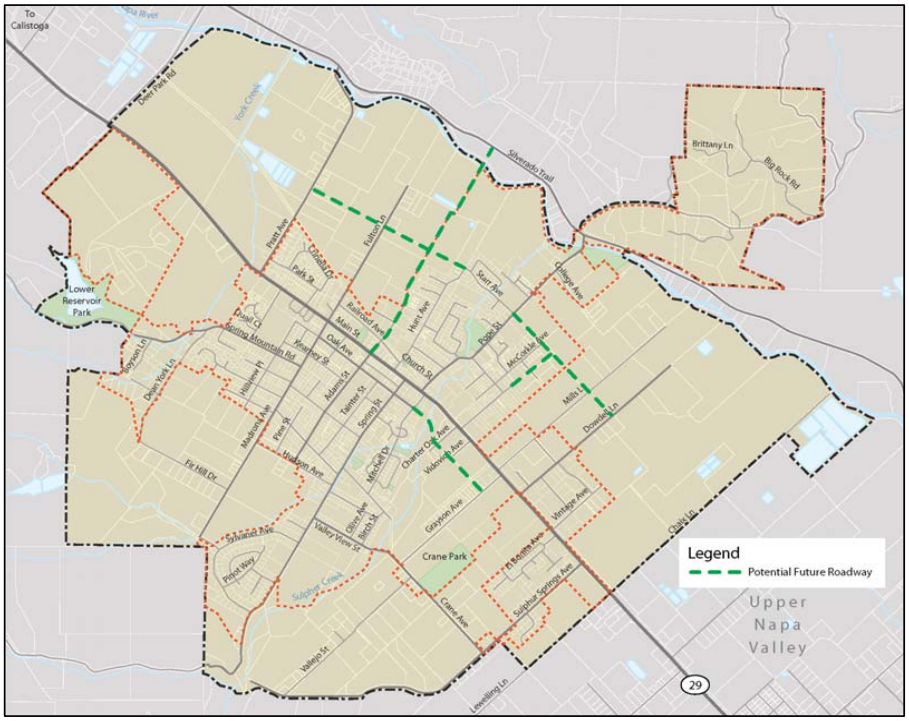
Existing Goals & Policies

St. Helena General Plan, 1993

At the time the previous General Plan was adopted in 1993, a key concern was congestion along SR-29/Main Street and improving north-south and east-west connections through St. Helena. The Plan also articulated the need for future roadways to provide access to potential new development. The 1993 General Plan contained key goals, objectives and policies for the city.

The following key transportation goals and objectives were included in the Circulation/Transportation Element of the 1993 General Plan:

- Designating a system of collector and local streets as a basis for managing traffic in the city
- Adding new streets to the existing system and preserving rights-of-way for future collector streets to improve access and connectivity throughout St. Helena as the city develops. An extension of Oak Street from Mitchell Street to Grayson Street is recommended in the 1993 General Plan, however subsequent studies have found this proposal infeasible.
- Establishing a Vehicle Level-of-Service policy based on Napa County's standard



Potential Future Roadways as proposed in the 1993 General Plan

SR-29 Specific Plan

The *SR-29 Specific Plan* (2007) developed by Kimley Horn & Associates provides direction for future development and associated traffic along SR-29 within St. Helena. Circulation objectives within the Circulation Element of the Plan include the following:

- Accommodating traffic on SR-29 for future planned development
- Providing circulation to the City's local street network
- Installation of a new traffic signal at the intersection of SR-29/Mills Lane and Grayson Avenue, the realignment of Mills Lane and extension of Oak Avenue
- Provisions for bicycle, pedestrian and auto vehicle parking facilities along SR-29

Napa County Transportation Planning Agency (NCTPA) Strategic Transportation Plan

The NCTPA was formed in 1998 to serve as the regional short- and long-term transportation planning body for Napa County, and also serves as the County's Congestion Management Agency. The *Strategic Transportation Plan* formed the basis for decision making related to highways, streets and roads, transit, paratransit and bicycle funding. The plan set forth a vision, mission, and eleven goals for the NCTPA to guide the prioritization of transportation improvements within the county. NCTPA goals are aimed at securing and the equitable distribution of funds, as well as the promotion a multimodal transportation system by enhancing transit, paratransit, and bicycling.

Napa Transportation Future Study

The Napa County Transportation & Planning Agency compiled the *Napa's Transportation Future* (2008) plan to study the relationship between countywide transportation investments and local land use practices. The Plan sets forth five goals focused on sustainable transportation that focus on reducing traffic congestion and improving quality of life in Napa County. The goals include:

- Reducing/restraining growth of automobile vehicle miles traveled (VMT)
- Spreading the load from peak times to non-peak times
- Improving the quality and safety of the street and road infrastructure
- Shifting travel from single occupancy vehicles to other modes
- Reducing overall energy use and greenhouse gas emissions

Twenty supply and demand strategies are identified to achieve these goals. Supply strategies include maintenance and expansion of road infrastructure, introducing roundabout configurations at high-frequency intersections, and improving pedestrian, bicycle, transit and carpool facilities. Significant focus is placed on transit strategies such as Bus Rapid Transit and passenger rail systems. Demand strategies focus on reducing the need for single-occupancy trips by promoting mixed land uses, partnering with the wine and tourism industry to promote car-free services, working with employers to encourage alternatives to commuting, and addressing transportation needs of the growing senior population.

Existing Street Network

The city of St. Helena lies on a north-west/south-east axis with SR-29/Main Street providing the backbone and the main route for intercity and regional travel. For simplicity, all streets parallel to SR-29 will be referred to as north-south routes while streets perpendicular to SR-29 will be referred to as east-west routes. The street network to the west of SR-29 is a grid pattern of residential blocks connected to SR-29 by a series of east-west collectors. To the east of SR-29 the grid network is discontinuous due to the lack of parallel facilities to SR-29 to connect the east-west roadways. The existing street network is displayed in Figure 2.

Streets typically referred to as arterials are two- to four-through-lane roadways designed primarily for either high speed / high capacity long-distance travel between major centers of activity or medium speed / medium capacity roads for intra community travel. The geometry of arterials reflects the higher speed / higher capacity nature with wider lanes and shoulders.

State Route 29 (SR-29) is a two- to four-lane rural highway that stretches through Napa County from Vallejo at Napa County's southern border to Lake County in the north. Within the City of St. Helena, SR-29 has two travel lanes and is known as Main Street. Main Street has parallel parking on both sides of the street and a center turn lane between Dowdell Lane and Madrona Street-Fulton Lane. Main Street provides the primary route for travel within St. Helena and to further destinations around the region. Since SR-29 is a major north-south thoroughfare for Napa County, heavy through traffic is typical along Main Street and vehicles often cut through St. Helena neighborhoods by using alternate parallel routes such as Oak Avenue and Valley View / Crane Street. Future improvements include the "Napa 29 Rehabilitation and Channelization" project which will construct a continuous center lane from Mee Lane to Sulphur Creek, signalization of select intersections along Main Street, and the creation of parallel access routes to provide better north-south connectivity.

Streets typically referred to as collectors are two- to four-lane roadways designed primarily for travel within the county's urbanized areas. These streets are relatively lower speed and lower volume roadways that provide for circulation between neighborhoods and link locally important activity centers. Their main function is not to move high volumes of traffic but instead to provide access for short trips and distribution to the arterial network.

North-South Streets:

Silverado Trail is a major north-south road that runs parallel to SR-29 and extends between Soscol Avenue (in the City of Napa) to the south and Lake County Highway (in the City of Calistoga) to the north. Within the St. Helena area it can be considered a Rural Collector as it provides north-south connections in a rural setting to the east of the St. Helena city limits. East-west access into St. Helena is provided at Pratt Avenue, Pope Street and Deer Park Road just north of the city limits. The roadway has two travel lanes for its entirety with turn lanes at select locations. Class II bike lanes run the length of Silverado Trail providing the major north-south bicycle route through the county. The posted speed limit varies from 35 to 55 mph.

Oak Avenue is a two-lane intra city collector that runs parallel to SR-29 to the west. The road is lined with business and residential uses along its length and allows parallel parking on both sides. Stop signs line Oak Avenue to calm and deter regional traffic from attempting to circumvent congested conditions on Main Street.

Valley View Street/Crane Street is a two-lane, north-south collector that that begins as a rural roadway at Sulphur Springs Avenue and transitions into a suburban residential collector north of Vallejo Street. This roadway is the outer most north-south connector in the grid system to the west of Main Street.

East-West Streets:

Pratt Avenue is a two-lane collector that connects Main Street to Silverado Trail on the north side of the city. Pratt Avenue provides access to both residential and winery uses, but lacks any north-south connections outside of Main Street. Despite its function as a major connection to Silverado Trail and as a bypass to congested conditions on Main Street, traffic is limited due to the poor sight distance and turning radius on the narrow Pratt Avenue Bridge that crosses the Napa River.

Pope Street is a two-lane collector that runs parallel to Pratt Avenue and connects Main Street and downtown St. Helena to Silverado Trail. Pope Street also provides access to suburban residential neighborhoods on the east side of Main Street. As with Pratt Avenue, poor sight distance and turning radii on the narrow Pope Street Bridge crossing the Napa River limit traffic to Silverado Trail. The *Silverado Trail Safety Study* was prepared by TJKM (2003) to improve these conditions and the recommendations include a realignment of Pope Street west of the bridge and a yield sign for the eastbound traffic. The study also emphasizes an extension of Adams Street to Silverado Trail as a long-range solution to reducing congestion. Realignment of the eastbound approach is currently under construction.

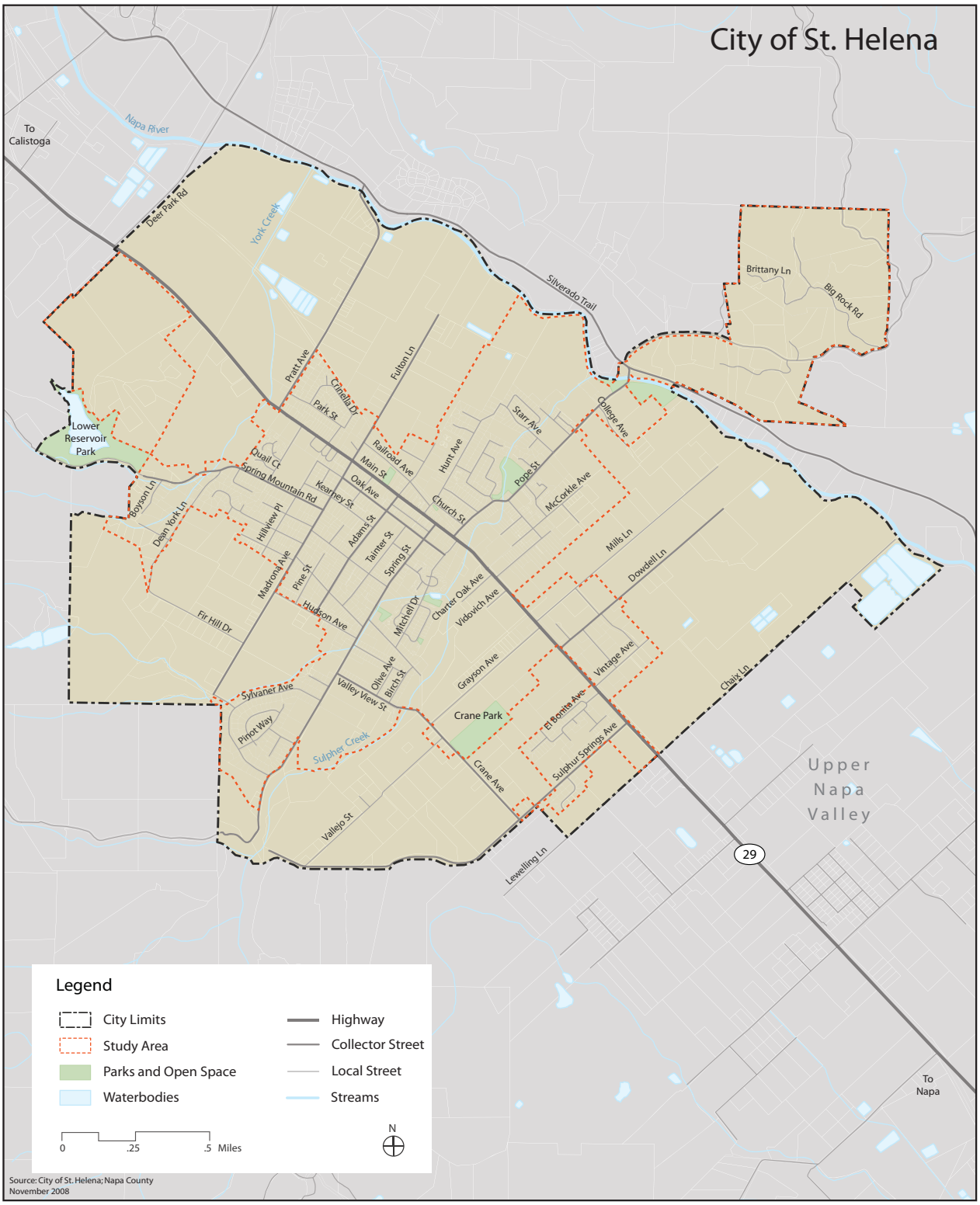
Madrona Street/Fulton Lane is a two-lane, east-west collector. To the west of Main Street, Madrona Street provides access to residential neighborhoods and to Spring Mountain Road, a regional connection to the City of Santa Rosa in Sonoma County. To the east of Main Street, Madrona becomes Fulton Lane which provides "dead end" access to commercial and residential areas. Fulton Lane lacks connections to other roadways east of Railroad Avenue.

Adams Street and Spring Street are both downtown collectors that provide access to the residential neighborhoods on the west side of the city. To the east of Main Street, Adams Street provides dead-end access to commercial and agricultural uses, although an extension to Silverado Trail has been proposed to relieve congestion on Pratt Avenue and Pope Street.

Dowdell Lane is a two-lane collector to the east of Main Street that provides access to a variety of agricultural and industrial uses located in the southeastern quadrant of the city. Dowdell Lane has connections to Mills Lane and Vintage Avenue but lacks north-south connectivity to the rest of the city except through Main Street. Dowdell Lane, as well as Mills Lane and Vintage Avenue, are side-street controlled stops, and typically develop long queues due to heavy traffic along SR-29. Improvements to alleviate these conditions include a center turn lane on Main Street south of Dowdell Lane and possible traffic signals at one or more of these intersections.

Sulphur Springs Avenue is two-lane collector on the southern edge of the City and provides access to a variety of commercial and rural residential uses. At its intersection with Main Street, two heavy traffic generators include an automobile sales lot and a destination resort. As the southern most connection to parallel north-south routes to Main Street, Sulphur Springs Avenue represents a possible bypass of SR-29 through the city.

Local streets are low speed and low volume roadways that provide direct access to abutting land uses. Driveways to individual units, on-street parking and pedestrian access are allowed. A majority of St. Helena's network not listed above consists of urban or rural local streets.



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ST. HELENA STREET NETWORK

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FIGURE 2

Public Transit

Public transit services are available in all of the cities and in much of the unincorporated areas of Napa County. The primary transit service in Napa County is provided by the VINE, a fixed-route bus service providing service to the Cities of Calistoga, St. Helena, Napa, American Canyon, the Town of Yountville and other parts of Unincorporated Napa County. St. Helena is served by Route 10, Route 11, and the St. Helena Shuttle. The bus routes through St. Helena are shown in Figure 3 and function as follows:

- **Route 10** – A major intercity route in Napa County, Route 10 provides service between Calistoga and Vallejo approximately once an hour from 5am to 9:45pm on weekdays, once every hour and a half to two hours on Saturdays from 6am to 8:45pm, and four times a day on Sundays between 8:20am and 7:15pm. Within St. Helena, Route 10 runs along Main Street and makes stops at Pratt Avenue, City Hall, Mitchell Drive, Mills Lane, and Dowdell Lane. Route 10 provides transit connections at the Vallejo Ferry Terminal to the greater San Francisco Bay Area region.

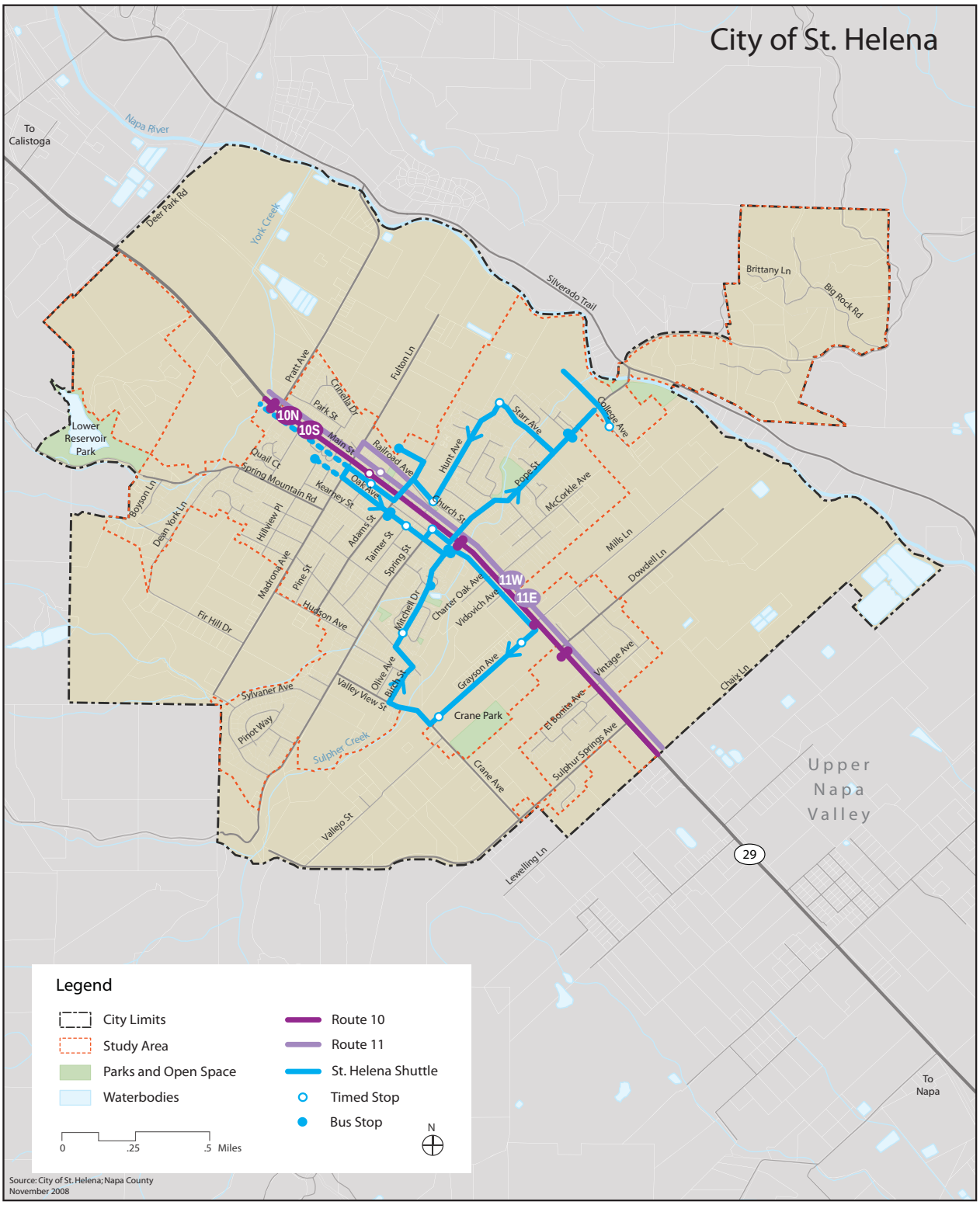
- **Route 11** – This route provides express service between Napa and Santa Rosa. Within St. Helena, Route 11 stops twice daily at City Hall on Monday, Tuesday, Wednesday, and Saturday on its way to Santa Rosa and once a day on its way to the Pearl Street Transit Center in the City of Napa. Route 11 provides transfer services to Santa Rosa CityBus, Sonoma County Transit, Golden Gate Transit, and Lake Transit.

- **St. Helena VINE Shuttle** – The VINE shuttle Provides a fixed route service within the city of St. Helena and to the St. Helena Hospital in Deer Park, just north of the city. The VINE shuttle is also available for door-to-door service within St. Helena when a reservation is made on the same day of travel. The VINE Shuttle operates on weekdays between the hours of 7:45am and 5pm and provides ten trips. Service is not available on weekends between 12pm and 1pm.

A study of the existing transit service within Napa County was performed by the Napa County Transportation Planning Agency (*Napa Short Range Transit Plan, 2008 – 2017)*. The study found that Route 10 has the highest ridership in the VINE system with over 270,000 passenger boardings in the 2006/07 fiscal year, or approximately 40% of the total fixed–route system ridership. Route 10 does not have the highest passenger productivity however, with only 12.4 passengers per hour compared to 25.1 passengers per hour for Route 4 which is a commuter route in the city of Napa. This discrepancy is due to the fact that Route 10 serves long distance trips as a major intercity route and has the longest service hours in the system. The plan also notes that Route 10 consistently runs late due to congested conditions along SR-29. Route 11 has the lowest amount of passenger trips in the system with 2,750 passengers in 2006/07. The study did not contain any ridership data for the St. Helena VINE shuttle.

Rail Service

No commuter or freight rail service exists in the City. The Napa Valley Wine Train is a privately owned tourist rail service that brings passengers from the City of Napa through the City of St. Helena although passengers are not allowed to embark or disembark from St. Helena. The *Napa / Solano Passenger / Freight Rail Study* (R.L. Banks & Associates, Inc., 2003) investigated the viability of expanded rail service. The study projected start-up costs of $100 million to $140 million for stand-alone passenger service.



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TRANSIT ROUTES MAP

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FIGURE 3

Pedestrian Network

Everyone becomes a pedestrian at some point in his or her journey, and the walking environment is one of the most basic public spaces where people interact in the urban landscape. The relative pleasure of walking in a neighborhood is a good yardstick for determining everything from design guidelines to land uses.

The *1993 General Plan* sets forth the following goal for walking within Guiding Policy 5.8.1:

> *It is a goal of the City that it continue to remain at a size where the majority of development is within a 10-minute walk of the downtown. Sidewalks or walkways will reinforce the pedestrian orientation of the City.*

According to 2000 Journey-to-Work Census data St. Helena residents are walking at a substantially higher rate than the countywide average; this is one indication the City is meeting its goal of developing a walkable community.

Downtown District

Downtown St. Helena was originally developed with a grid of streets that includes a comprehensive network of sidewalks in most parts of the City. The central business district surrounding Main Street is the city's core pedestrian district. The St. Helena Downtown Renaissance Group is a local merchants' association working to improve pedestrian, bicycle and bus transit access within the downtown area. This group has promoted concepts for a pedestrian plaza on Hunt Avenue between Main Street and the railroad tracks. One challenge that must be addressed in this plan is that Hunt Avenue provides the only truck access for the Safeway supermarket located at Hunt Avenue and Edwards Street. The City is eligible for a T-Fund grant from Caltrans that may be applied towards pedestrian-oriented street improvements in the downtown area.

Neighborhood Access

Older neighborhoods surrounding the downtown core generally have well maintained sidewalks that provide pedestrian access between residential areas and schools, community centers and other walkable destinations. Additionally, recent traffic calming efforts along Sulphur Springs Avenue, Crane/Valley View and Spring Street have been made to improve the walking environment by reducing vehicular speeds. Neighborhoods towards the periphery have fewer pedestrian amenities and sometimes lack sidewalks. Areas such as the Dean York neighborhood have a rural character where sidewalks may not be appropriate, whereas traditional suburban developments such as the Sylvaner neighborhood were designed primarily for vehicular access and have poor pedestrian access. Looking forward, the City may consider a policy to provide Americans with Disabilities Act (ADA) accessible connections on all streets.

Open Space Access

Several open spaces and parks located within St. Helena and in the surrounding area lack well-defined and accessible connections for pedestrians and bicyclists. Lower Reservoir Park, located on the west side of the city, is a valuable recreational resource but lacks pedestrian access. Future opportunities for a multi-use trail may be considered. Similarly, opportunities to provide pedestrian and bicycle access to the Napa River are being pursued by local wineries and will create recreational and commuting opportunities for both visitors and local residents.

Bicycle Network

The size, topography, and climate of St. Helena make it an ideal city for bicycling. Bicycles are a convenient means of transportation for short trips within cities, especially those less than three miles in length. According to the U.S. Department of Transportation, one-quarter of all trips in this country are under one mile; about 40 percent of all trips are two miles or shorter. The use of bicycles for short trips within the city would reduce the amount of similar trips by automobiles, which would subsequently improve air quality because car engines produce more pollutants when they are cold. A study for the State of California estimated that 90 percent of emissions in a seven-mile auto trip are generated in the first mile. Studies estimate that for every one percent of auto trips replaced by cycling, air pollution from cars drops by two to four percent. Key constraints to bicycling in St. Helena include the lack of bikeway and support facilities (such as bicycle parking).

Types of Bikeway Facilities

Bikeway planning and design in California typically relies on the guidelines and design standards established by Caltrans as documented in "Chapter 1000: Bikeway Planning and Design" of the *Highway Design Manual* (5th Edition, California Department of Transportation, January 2001). Chapter 1000 follows standards developed by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA), and identifies specific design standards for various conditions and bikeway-to-roadway relationships. Caltrans standards provide for three distinct types of bikeway facilities, as generally described below, and shown in Figure 4:

- ***Class I Bikeway (Bike Path)*** Class I bikeways are completely separated from motor vehicle traffic, as in the case of an off-street path along a river or railroad corridor. A sidewalk bicycle path would not be considered a Class I facility unless properly designed and separated from the roadway by an appropriate buffer. Pedestrians are allowed on Class I paths.

- **Class II Bikeway (Bike Lane)** provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally at least five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted. Class II lanes are preferred to Class I paths on roadways with multiple intersections and/or driveways, for the reasons described above.

- ***Class III Bikeway (Bike Route)*** provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles. A Shared-Use Arrow (or "Sharrow") can be marked in the outside lane on a Class III route to show the suggested path of travel for bicyclists. This is often done when the route has on-street parking, in order to encourage cyclists to ride a safe distance away from the parked vehicles' "door zone." The Sharrow can also be used at intersections with multiple turn lanes to show bicyclists the recommended lane for through travel. The Sharrow also shows drivers that cyclists should be expected on the street and given sufficient room. A sign stating "Bicycle Allowed Full Use of Lane" is often included. The Sharrow graphic on page 16 shows specifications for this marking.

Existing Bicycle Facilities

The existing bicycle network is illustrated in Figure 5. All City bicycle routes are Class III Bikeways, with the exception of one segment of Class II bike lane along Starr Avenue. These bicycle routes are consistent with the City of St. Helena 1993 General Plan, which states that bicyclists shall be discouraged from using Main Street for safety purposes and shall be encouraged to use other parallel streets. There are no Class I bike facilities within the City. However, plans for the Vine Trail would provide a multi-use path along the Napa River connecting St. Helena to regional destinations in the valley.

Bike lanes could potentially be accommodated on many streets in St. Helena, but in some cases they would require narrowing of existing travel lanes and/or the removal of on-street parking. The City's traffic calming efforts have already experimented with narrowed roadways in some areas. On streets with constrained right-of-way, Class III routes may be enhanced with Sharrows, way-finding signage and traffic calming strategies.

The City currently has an adopted Bicycle Master Plan though it has not been recently updated. Proposed bicycle facilities within the *2003 NCTPA Countywide Bicycle* Plan are described in Figure 4.

Collision Data

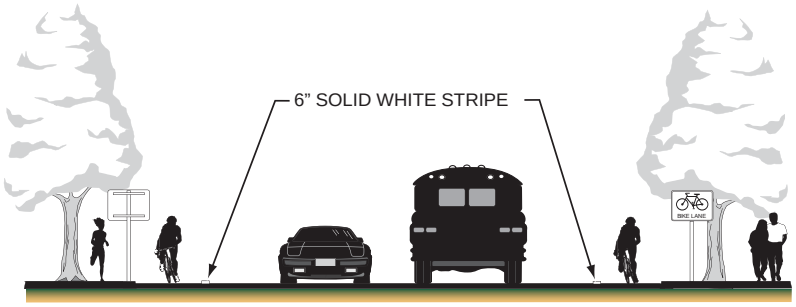
Bicyclist crash data from the 2003 NCTPA Countywide Bicycle Plan indicate that the majority of collisions occur along SR-29/Main Street. All crashes occurred at intersections, and may be the result of turning conflicts between bicyclists and motorists. This higher frequency may also indicate heavier bicyclist volumes along this route. As part of the General Plan Update, the City may consider developing a citywide bicycle network that will enhance the safety and comfort for cyclists of varying abilities. Particular attention should be given to safety enhancements along SR-29.

Bicycle Support Facilities

As part of the General Plan update, the City may wish to consider policies aimed at encouraging or requiring the provision of bicycle parking, particularly if new development occurs.

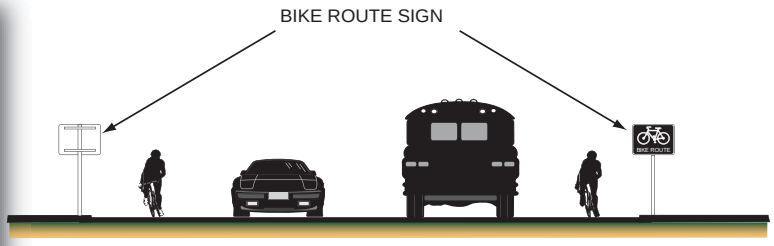
CLASS I BIKEWAY (Bike Path)

Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow minimized.



CLASS II BIKEWAY (Bike Lane)

Provides a striped lane for one-way bike travel on a street or highway.



CLASS III BIKEWAY (Bike Route)

Provides for shared use with pedestrian or motor vehicle traffic.

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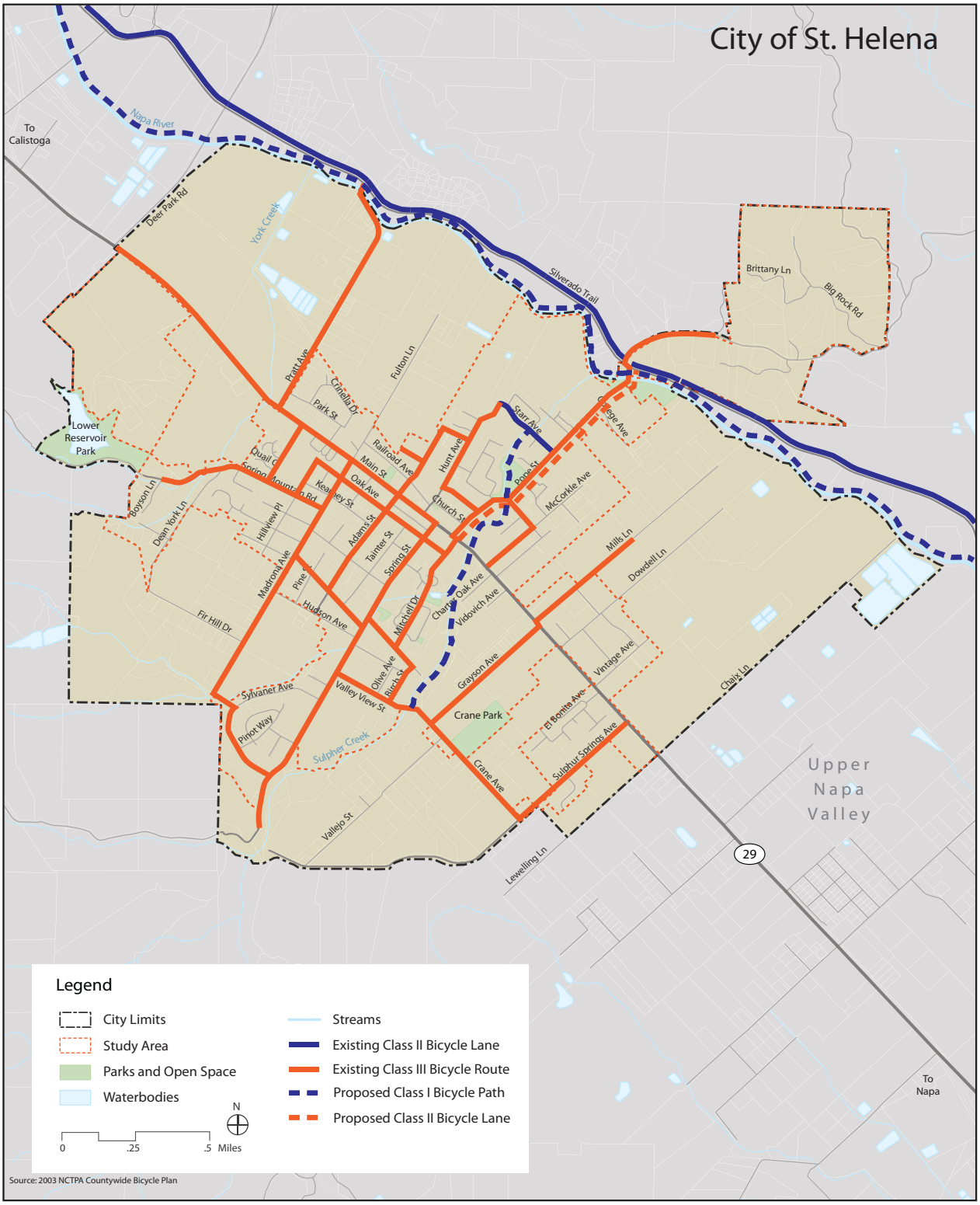
BIKEWAY FACILITY TYPES

H-20

FIGURE 4



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EXISTING AND PROPOSED BICYCLE NETWORK

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FIGURE 5

Motor Vehicles and Parking

Transportation engineers and planners commonly use a rating system called Level-of-Service (LOS) to measure and describe the operational status of intersections or roadway segments on a local street network. LOS is a semi-quantitative description of an intersection or roadway's operation, ranging from LOS A (indicating free flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions with traffic flows exceeding design capacity, resulting in long queues and delays). One goal in the 1993 St. Helena General Plan is to define a set of LOS standards to conform to the Napa County Standards. The LOS guidelines for St. Helena are listed in Appendix A.

Existing Roadway Conditions

There are several approaches for defining the LOS for a roadway segment. A daily LOS is a generalized approach, where the volume-to-capacity ratio is calculated from a theoretical daily roadway capacity based on the number of lanes and capacity class. The capacity class represents the type of facility such as highway, arterial, or collector. This approach is used where the road features are generally uniform over an extended distance. The daily LOS may not account for peak hour delays that occur resulting from extended queuing at closely spaced intersections or at high-demand movements.

To estimate daily roadway LOS, Average Daily Trip (ADT) counts were conducted by Omni-Means in August 2007 at a selection of key roadway segments. These counts were supplemented with traffic counts from sources less than two years old, including Caltrans count data and recent traffic studies. Table 4 shows existing ADT on several key roadway segments in St. Helena. LOS definitions and guidelines for roadways are listed in Appendix A, Table 7.

TABLE 4
EXISTING ROADWAY CONDITIONS SUMMARY

Study Roadway Segments	Roadway Classification	ADT	LOS[1]
Main Street north of Pratt Avenue	Minor Arterial Street	**18,600**	**F**
Main Street north of Adams Street	Minor Arterial Street	**17,000**	**F**
Silverado Trail north of Howell Mountain Road[3]	Collector Street	10,900	C
Oak Avenue south of Adams Street	Collector Street	4,800	A
Pope Street west of Silverado Trail	Collector Street	6,000	B
Valley View south of Charter Oak Avenue	Collector Street	3,500	A
Sulphur Springs Avenue west of Main Street	Collector Street	2,200	A

Notes:
1. See Table 5 in Appendix A for ADT LOS definitions and standards.
2. **Bold** represents unacceptable operations.
3. Silverado Trail functions as a minor arterial even though it is classified as a rural collector.

Source: Fehr & Peers, 2008.

Most streets in St. Helena operate acceptably with little congestion except for Main Street which operates at oversaturated conditions at both study locations. With 17,000 and 18,600 vehicles per day at the two study locations, Main Street has significantly more traffic than the acceptable LOS D as defined in Appendix A.

Other methods of quantifying the LOS of a roadway segment include using the AM and PM peak hour volumes for collector or local roadways and average vehicle speeds for arterial roadway segments. Both these methods produce similar LOS results as shown in Table 4, confirming acceptable operations throughout the city except for Main Street. Results of these analysis methods are shown in Appendix B, Tables 10 and 11 for city streets and Main Street, respectively. LOS standards are defined for these methods are shown in Appendix A.

Existing Intersection Conditions

Roadway traffic volumes provide a limited sense of how traffic operates and where major areas of congestion typically occur. Intersection analysis is generally a useful tool to develop a better understanding of key traffic issues and conflicts. To better understand the current traffic issues facing St. Helena, 20 study intersections were chosen and analyzed. These intersections were selected based on the desire to gain a comprehensive understanding of the operations of traffic during the morning and evening peak hours. Intersections are typically analyzed based on the average delay in seconds that vehicles have to wait at an intersection before proceeding through. Table 9 in Appendix A shows the LOS guidelines for intersection control. Table 5 shows the existing delay and LOS of the select intersections. These values were calculated based on traffic counts conducted by Omni-Means in August 2007.[1] The volumes from these counts are shown in Figure 6 located in Appendix B.

As shown in Table 5, seven intersections have a peak hour LOS of E or worse. All of the intersections are unsignalized and are located on Main Street, with the exception of the Silverado Trail / Pope Street intersection. The operations at these intersections are due to excessive delays and long queues for the side-street stop-controlled traffic. This is attributed to heavy through movements along Main Street and Silverado Trail and the lack of "gaps" available for vehicles to proceed through the intersection.

Improvements are underway at some of these intersections as a part of work currently being done on Main Street and at the Silverado Trail / Pope Street intersection. On Main Street, the construction of the center turn lane and the signalization of several intersections is expected to improve several of the intersections. For example, the signalization of the intersections at Main Street / Grayson Avenue / Mills Lane and Main Street / Vintage Avenue will lesson congestion and queues at those and other intersections. Work currently under way at the intersection of Pope Street / Silverado Trail is expected to improve conditions at that intersection. This work includes realignment of the western approach to the Pope Street Bridge to improve sight distance and turning radii and addition of a yield sign for east-bound traffic approaching the bridge.

[1] Traffic counts are not typically taken during the summer as schools are not in session which can disproportionately affect the counts. However, in the case of St. Helena, traffic is typically much higher during the summer months due to Wine Country tourism and Omni-Means presumably took counts during August for conservative measure.

TABLE 5
EXISTING INTERSECTION LEVEL OF SERVICE

Intersection	Control Type[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Main Street / Deer Park Road	SSS	**> 50**	**F**	**41**	**E**
2. Main Street / Pratt Avenue	SSS	**40**	**E**	**> 50**	**F**
3. Main Street / Elmhurst Avenue	SSS	20	C	26	D
4. Main Street / Madrona Street / Fulton Lane	Signal	21	C	24	C
5. Main Street / Adams Street	Signal	23	C	24	C
6. Main Street / Hunt Avenue	SSS	22	C	24	C
7. Main Street / Spring Street	SSS	**> 50**	**F**	**> 50**	**F**
8. Main Street / Pope Street	Signal	23	C	24	C
9. Main Street / Charter Oak Avenue	SSS	**> 50**	**F**	**> 50**	**F**
10. Main Street / Grayson Avenue / Mills Lane	SSS	**> 50**	**F**	**> 50**	**F**
11. Main Street / Dowdell Lane	SSS	**44**	**E**	**37**	**E**
12. Main Street / Sulphur Springs Avenue	SSS	32	D	24	C
13. Silverado Trail / Pratt Avenue	SSS	15	C	17	C
14. Silverado Trail / Pope Street	SSS	**40**	**E**	**> 50**	**F**
15. Spring Mountain Road / Elmhurst Avenue	SSS	11	B	11	B
16. Madrona Avenue / Spring Mountain Road	SSS	11	B	10	B
17. Madrona Avenue / Hudson Avenue	SSS	9	A	9	A
18. Valley View Street / Spring Street	SSS	11	B	10	B
19. Grayson Avenue / Crane Avenue	SSS	9	A	8	A
20. Sulphur Springs Avenue / Crane Avenue	SSS	10	B	9	A

Notes:

Signal = Signalized intersection; AWS = All-Way Stop-Controlled intersection; SSS = Side-Street Stop-Controlled intersection

Bold represents failing intersections according to the LOS standards set forth in Table 9, Appendix A.

1. Signalized and AWS intersection level of service based on average control delay per vehicle, according to the HCM- Special Report 209 (Transportation Research Board, 2000). Side-street stop-controlled intersection level of service based on worst approach control delay, according to the HCM-Special Report 209 (Transportation Research Board, 2000).
2. Any delay greater than 50 seconds at a stop controlled intersection represents a failing intersection with oversaturated conditions.
3. See Table 9 in Appendix A for ADT LOS definitions and standards.

Source: City of St. Helena General Plan Transportation Element Update, Omni-Means, 2007

Interregional Travel Patterns

Because SR-29 is the main route for vehicles traveling from Lake County or Northern Sonoma County to the City of Napa and destinations to the south, inter-county travel through St. Helena is significant. A study titled *Origin and Destination Study: Mendocino, Lake, Napa, and Sonoma Counties* by the Mendocino Council of Governments (MCOG, December 2006) investigated the interregional trips between Napa County and Lake and Sonoma Counties. This study found that a significant amount of trips between the three counties is due to imbalances in housing, retail, and jobs. Although through trips make up a significant portion of the countywide trips, most vehicles along SR-29 have origins or destinations within Napa County. While intra-city circulation may be improved with the policies and objectives recommended by the Transportation Element, other region-wide housing, employment, and public transit policies may need to be enacted to limit further growth in interregional travel. The issues involved with containing interregional travel are discussed later in this report in the *Current Studies and Planned Improvement* section covering *Napa's Transportation Future of 2008*.

Truck Traffic

A study by Caltrans titled *2005 Annual Average Daily Truck Traffic on the California State Highway System* (Traffic and Vehicle Data Systems, November 2006) estimated that truck traffic composes 6.7% of the traffic on SR-29 at the intersection of Adams Street. The two major generators of truck traffic along State Route 29 are through-traffic between the City of Napa and northern Napa County and the cement plant owned by Harold Smith & Sons located on Crane Avenue. Harold Smith & Sons generates truck traffic on the local street network; typically trucks use Allyn Avenue and Adams Street to connect to SR-29.

Traffic Calming

According to the Institute of Transportation Engineers, traffic calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes.

Traffic diverting from SR-29 onto St. Helena's local street network has raised safety concerns among local residents. In particular, residents have complained of excessive speeding along Sulphur Springs Avenue-S. Crane/Valley View and Spring Street as motorists attempt to bypass congestion on SR-29.

In 2006, Omni-Means and Dan Burden of Glatting Jackson performed a traffic calming study of this area. Daily traffic counts, license plate "origin-destination" surveys, radar speed surveys and collision analysis were performed along Sulphur Springs Avenue, South Crane/Valley View and Spring Street. Public workshops also gathered input from local residents concerned with speeding and cut-through traffic on these streets. Multiple traffic calming measures were considered to reduce these impacts.

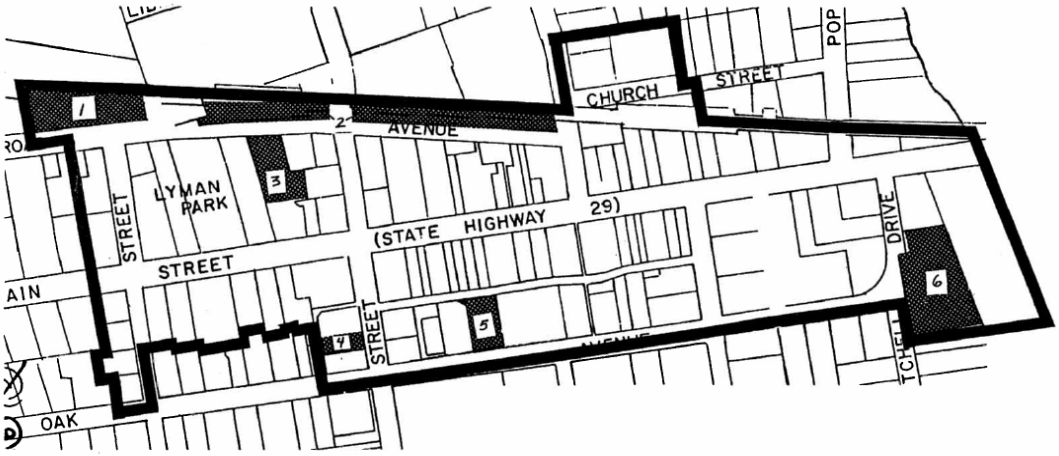
Due to budget constraints and that fact that all three streets are designated as primary emergency vehicle response routes, very basic countermeasures were proposed and installed. These recommendations included removal of the street centerline and striping eight-inch white edge lines to create a 20' roadway. The traffic calming improvements have been met with mixed response from local residents who are not familiar with such strategies or may not understand their purpose. In addition, roadway shoulders have been painted brick red in some areas. This roadway treatment has also had mixed reviews from the community, as some residents feel that it does not reflect the rural feel of the road, or dislike the color.

The City may wish to revisit traffic calming strategies and develop a comprehensive policy to guide future measures. This could include a selection of an appropriate "toolbox" of traffic calming measures and guidelines for their installation.

Parking Policies

Parking is a concern in Downtown St. Helena. In general, there are few restrictions on on-street parking downtown or the city at-large. Along Main Street, parallel on-street parking is free to encourage commercial activity and to provide a buffer between pedestrians and the roadway.

The 1993 General Plan identified a Parking Impact Area (shown below) as the portion of the city most affected by parking supply and demand issues. General Plan policies require any new development that would produce new demand for parking within the Impact Area must either supply additional parking within the development proposal or contribute an in-lieu fee to the City's off-street parking program.



Parking Impact Area

1. "City Depot Property"
(APN 9-193-03) Owned by the City of St. Helena
Approximately 95 potential parking spaces.

2. "Napa Valley Wine Train Property"
(portion of APN 9-210-01) Owned Napa Valley Wine Train
Approximately 20 potential parking spaces.
(51 parking spaces are already developed).

3. "Donaldson Property"
(portion of APN 9-211-05) Owned by Richard & Gladys Donaldson
Approximately 35 potential parking spaces.

4. "Harris Property"
(APN 9-223-22) Owned by Rennick and Marilyn Harris
Approximately 30 potential parking spaces.

5. "Alliguie Property"
(APN 9-240-15) Owned by Armand Alliguie
Approximately 30 potential parking spaces.

6. "PG&E Property"
(APN 9-263-05) Owned by Pacific Gas and Electric
Approximately 75 potential parking spaces.

St. Helena
General Plan Update

Downtown Parking Improvement Plan Candidate Parcels

Additionally, the 1993 General Plan set forth a policy for the City to develop and maintain an off-street parking program. Consideration for a new downtown parking structure has been made. While the most likely site for a proposed lot is owned by the Pacific Gas & Electric Company (PG&E), this land is contaminated and requires significant environmental mitigation.

In the future, the City may wish to consider a parking management program for the central business district.

CURRENT STUDIES AND PLANNED IMPROVEMENTS

This section describes the planned improvements to St. Helena's internal circulation system and that of the county as a whole. Citywide projects or studies include reducing traffic congestion on SR-29 and improving the overall circulation and access. Relevant countywide issues such as the relationship of transportation investments and local land use and transit and bicycle access improvements will play an important role in the future circulation of St. Helena.

Traffic Congestion Reduction along SR-29

The City approved intersection control at the Main Street intersections with Dowdell Lane and Grayson/Mills Lane as a part of the *Highway 29 Corridor Specific Plan* (TJKM, 2002). Although the preliminary plans were to install coordinated traffic signals at each of the intersections, a study was conducted in 2006 by Omni-Means (*St. Helena Roundabout Feasibility Study*) to determine the feasibility of installing a roundabout at the intersections. Although the roundabouts were determined to be able to handle the anticipated traffic levels, the footprints for the projects were too large for the area due to the adjacent railroad and other right-of-way constraints. As a result, the signalization of Grayson Avenue, Vintage Avenue, and Sulphur Springs Avenue were recommended under the *SR-29 Access Study* (Kimley-Horn, 2007).

The Caltrans "Napa 29 Rehabilitation and Channelization" project proposes to construct wider shoulders and a nearly continuous center turn lane on SR-29 from Mee Lane to Sulphur Creek. This project will include road widening and will need easements from the Wine Train and allowances from Caltrans to move some of the above ground utilities. The project would also construct bicycle crossing improvements at the Whitehall Lane railroad crossing.

Circulation and Access Improvements

Several studies have been undertaken to improve the circulation and access within St. Helena. Two important issues the studies addressed include improving intra-city north-south access parallel to Main Street and connections between Main Street and Silverado Trail.

The *State Route 29 Specific Plan* (TJKM, 2002) addresses the issue of north-south access with an evaluation of an Oak Avenue extension from Mitchell Drive to Grayson Avenue. Results found that the extension would not substantially improve traffic conditions on SR-29. In addition, public perception of this project was that it would create undesirable effects including worsened traffic and noise. For these reasons, this strategy was eliminated. Another proposal is to create a new north-south connection on Starr Avenue from Dowdell Lane to Pratt Avenue. The project is expected to improve circulation on the east side of Main Street and reduce the number of local trips on Main Street.

Access to Silverado Trail, an important parallel route to SR-29 through Napa County, is restricted due to poor sight distance and turning radii over the historic narrow bridges crossing the Napa River at both Pope Street and Pratt Avenue. The *Silverado Trail Safety Study* prepared by TJKM (2003) proposed two projects to improve the east-west access to Silverado Trail. The short term solutions currently under construction are the realignment of the western approach to the Pope Street Bridge to improve sight distance and turning radii and the placement of a yield sign for eastbound traffic to assign right-of-way to westbound vehicles crossing the bridge. The yield sign will reduce delays in the Pope Street / Silverado Trail intersection due to turning vehicles from Silverado Trail unable or unwilling to enter the bridge due to eastbound traffic. The proposed long term solution to improve parallel access is to extend Adams Street across the Napa River to Silverado Trail which will provide an alternative crossing of the Napa River and reduce traffic on Pope Street.

Napa Transportation Future Study

As discussed in the section on Existing Goals and Policies, *Napa's Transportation Future* (2008) presents the relationship between countywide transportation investments and local land use practices.

The Plan presents five scenarios based on the Napa/Solano Traffic Forecasting Model that analyze the effects of the different strategies under varying future conditions. These scenarios include baseline conditions, the implementation of strategies without land use changes, implementation with land use changes, slower growth, and an increase in auto operating costs. The report found that the only scenario to significantly lower vehicle miles traveled (and the corresponding factors including lower greenhouse gases and vehicle hours of travel) was the slower growth scenario. However, when regional traffic is taken into account, the most congested roadways were not significantly affected under any of the five scenarios. This is due to a heavy amount of inter-county travel, both travel to and from Napa County as well as through the county.

For St. Helena, this means that countywide strategies to limit congestion will likely not have much of an impact on reducing congestion on SR-29. Even though the percentage of inter-county trips is lower on SR-29 than other major county highways, a combination of local and regional strategies will need to be undertaken to manage the transportation impacts of future growth.

NCTPA 2003 Countywide Bicycle Plan

The NCTPA 2003 Countywide Bicycle Plan identifies six improvements in the City of St. Helena. One improvement is ranked 11th in priority out of about 100 countywide projects; the rest of the improvement priorities range from about 40th to 55th. The total countywide cost of the Bicycle Plan projects is $50.4 million; the St. Helena projects comprise $1.3 million of that cost. The projects are listed in Table 6 below. Improvements are illustrated in Figure 7.

The 1993 St. Helena General Plan discourages bicycling along SR-29/Main Street for safety concerns, however this corridor continues to be a popular cycling route and the Countywide Plan includes provisions for signage. Two Class I trail projects, the Sulphur Creek Multi-use Path and Napa River Multi-use Path (also known as the Vine Trail), are recommended in the countywide plan and are in keeping with the *1993 General Plan* Guiding Policy 5.8.2 to create a system of bicycle routes along open space corridors. To boost bicycle tourism in the Napa Valley, local vintners and grape growers are interested in partial funding of the proposed Vine Trail project. This project would provide bicycle and pedestrian access along the Napa River to wineries throughout the valley.

TABLE 6
2003 NCTPA PROPOSED BICYCLE FACILITIES WITHIN ST. HELENA

Route	*Rank*	*Cost*	*Description*
1g	11	$1,200	Install signage on Main Street from Sulphur Creek to Pratt Avenue designating the route as a Class III (signage only) bicycle route.
26a, 26b	41, 42	$200,000	Widen Pope Street from SR-29 to the creek and from the creek to Silverado Trail to provide 4' minimum Class II (pavement striping) bike lanes.
26g	54	$358,000	Construct the Sulphur Creek Path, a Class I separated bike path, from Valley View Street to Starr Avenue.
26h	55	$325,000	Construct the Napa River Path, a Class I separated bike path, from Pratt Avenue to Del Campo Court.
26i	56	$423,000	Construct the Napa River Path, a Class I separated bike path, from Pope Street to the City Limit.

Source: Table Provided by Omni-Means, 2006.

Transit Plans

The Napa County Transportation and Planning Agency (NCTPA) compiled a *Short Range Transit Plan FY 2008-2017* (SRTP) for Napa County in 2008. The NCTPA operates the transit services in the Napa Valley, which includes the VINE bus system. The objective of the SRTP is to evaluate the current systems performance, project demographic changes, identify funding issues, and create a reasonable projection of the conditions over the next ten years. The SRTP sets out several goals and objectives to improve the transit system in Napa County. These include:

- Improving VINE service productivity as ridership has been on the decline for several years
- Improving marketing in the community to encourage ridership
- Managing on-time performance more effectively
- Minimizing operating costs
- Reevaluating the farebox recovery ratio

Several recommendations that relate to service within St. Helena are made to address these goals and objectives:

- Discontinuing Route 11 as it has consistently underperformed since the beginning of service and only averages 1.3 passengers per revenue hour. Route 11 is the least productive line in the system and discontinuing the route would save 2,100 service hours that could be used to expand service on routes with more ridership potential.

- Addressing on-time performance for Route 10. Route 10 is consistently late and the schedule should be readjusted to reflect the heavily congested conditions on SR-29 between St. Helena and the Napa. By adding more time to the schedule and adding recovery time at the Napa Pearl Transit center, Route 10 will be a more dependable service with better on-time performance.

- Adding an Express Route 10 to serve commuters from the Napa Valley to the ferry building in Vallejo. This plan has backing from the NCPTA committee and has already received a grant to begin planning the route. Additional studies will be undertaken to explore the possibility of increasing the frequencies of Route 10 from Napa to Vallejo as well as adding more weekend service.

- Improving marketing in the community through printed materials, specials events, and exceptional customer service. A strong emphasis is made on making an outreach to the Latino community as they represent a large segment of the system's ridership.

ISSUES AND OPPORTUNITIES

As part of the General Plan update, the City of St. Helena may wish to revisit the key goals, objectives and policies contained in the 1993 General Plan. The following are some of the key planning issues and implications with regard to transportation:

Strategies for Sustainable Transportation

Transportation Demand Management (TDM)

Regional policies anticipate a continued emphasis on encouraging greater reliance on carpooling and transit use. As part of the General Plan update, the City may wish to adopt specific goals and policies related to vehicle trips and mode split. Development review standards could be revised to encourage travel by alternative modes, such as through reduced parking requirements and the provision of preferred parking for carpools and vanpools; orientation of building entrances to facilitate pedestrian and transit access; and the provision of bicycle parking and shower or locker facilities.

Improved Transportation Performance Measurements

As part of the General Plan update, the City of St. Helena may wish to adopt specific performance measurement standards, such as level of service (LOS) standards that would be used to evaluate future development applications and determine appropriate improvements. Ideally, the performance standards would take into account other travel modes (pedestrian, bicycle, transit) where LOS is measured as a function of overall accessibility and convenience for all modes. Performance standards could vary for specific street and location types.

Parking Management Program

The City of St. Helena may consider adoption of a Parking Management Program as part of the 2030 Update to the General Plan. This program would guide the City in determining the location and amount of both publicly and privately owned parking in a comprehensive manner. Strategies could include:

- Establishing parking maximums and/or minimums
- Pricing schemes for market-based fees for parking
- Ensuring that parking standards conform to the City's urban form and community character
- Strategies for optimizing shared parking uses
- Design guidelines for parking facilities to accommodate pedestrians and bicyclists

Climate Action Plan

The City of St. Helena may wish to include integrated transportation and land use strategies that deliver sustainability of climate, energy and public health within the update to the General Plan. The City can adopt planning strategies and effectiveness measures to address recent climate legislation and to minimize development impacts on climate change. For example, some local agencies are starting to adopt ordinances or resolutions to achieve greenhouse gas reductions, although "climate action plans" or energy plans are more common. Transportation strategies that may be considered as part of a climate action plan include developing targets for reducing per-capital miles traveled, supporting transit oriented development, and integrating transportation and land use decisions.

Neighborhood Electric Vehicle Circulation

Some communities seeking to reduce carbon emissions are using a Neighborhood Electric Vehicle system. Downtown, historic districts and other important areas of St. Helena can be designated as NEV (35 mph maximum speed) zones. While a separate network is most appropriate for NEV use on high-speed streets, the City of St. Helena may consider NEV use on local streets that have low vehicular speeds and traffic volumes.

A neighborhood electric vehicle used by the Anaheim Police Department. Photo courtesy of Richard Masoner.

Transit Opportunities

Transit Supportive Land Use

Dispersed land use patterns and long intervals between buses means that transit usage in the region is still minimal in comparison to the use of private automobiles. Less than two percent of St. Helena residents commuted to work on transit in 2000, while 69 percent drove alone in a private car and 13 percent carpooled.

Transit System Enhancements

As part of the General Plan update, the City may wish to adopt specific performance targets for transit usage, as well as policies related to potential bus priorities on City streets and bus stop improvements (such as benches and shelters to provide shade and the provision of additional information at bus stops to aid riders). Additionally, land use policies adopted as part of the General Plan update could place an emphasis on focusing development near existing transit facilities.

Non-motorized Opportunities

Bicycle Network

A bikeway network has not yet been developed in St. Helena and bicycle support facilities, such as bicycle parking, are lacking in many areas. The mode share of cycling could be increased through construction of such facilities at activity centers throughout the city; key activity centers that could be conducive to increased rates of bicycling include the downtown area, bus stops, schools and parks. Additionally, access to open space and regional destinations throughout the Napa Valley may be improved through a system of off-street multi-use paths. The General Plan update creates an opportunity for the City to develop specific policies and objectives related to enhancing the role of bicycling as a form of transportation.

Pedestrian Network

As part of the General Plan update, the City could consider designating certain corridors or activity nodes within the City as “pedestrian zones,” in which pedestrian improvements would be given a high priority. Additionally, many of St. Helena’s sidewalks do not meet current ADA standards. The City could consider adopting specific policies for ADA compliance and develop a transition plan for upgrading pedestrian rights-of-way to be ADA-compliant. The City could also consider adopting specific goals and policies related to crosswalk installation as part of a larger aim to promote pedestrian safety.

Street Design / "Complete Streets" Strategies

State Street, Santa Barbara
Image credit: University of Connecticut

Complete Streets

As part of the General Plan update, the City may wish to refine and expand upon key goals related to streetscape improvements, including an identification of priority corridors for street beautification projects, which could also benefit pedestrian circulation. A set of streetscape guidelines may also be established.

Increased Street Connectivity

The City of St. Helena 1993 General Plan contains a circulation map of the City with proposed alignments to connect the existing grid system and provide access to future development. The City should review and update the 1993 General Plan street system, and encourage its completion consistent with future development patterns. The Update to the General Plan should include appropriate access and connections for all modes between neighborhoods and the downtown area, and adequate circulation to new developments, such as the Mercy and Magnolia Oaks Housing Projects. North-south travel on the east side of the City remains an issue and should be addressed within this review.

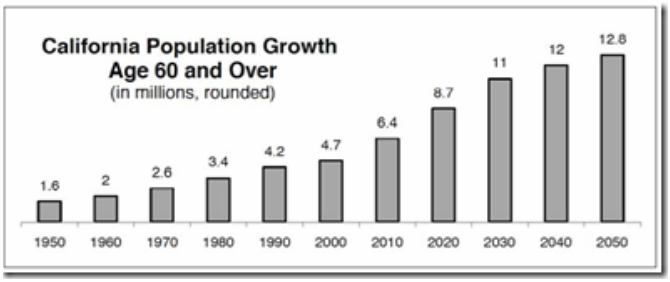
Traffic Calming

Minimizing the negative impacts of motor vehicle traffic on residential streets has been a major priority for St. Helena, and the City has pursued multiple traffic calming strategies in recent years. However, some recent traffic calming efforts have been contentious, as the toolbox of treatments was limited and motorists were unfamiliar with their purpose. A more comprehensive approach may be needed, and development of specific policies to guide the consideration and installation of traffic calming measures could be included in the General Plan update.

Changing Demographics and Travel Patterns

Seniors

California is experiencing a significant demographic shift towards an aging population and St. Helena is no exception. With the aging of the Baby Boom Generation, California's senior population is projected to increase by 85 percent or 11 million seniors between 2000 and 2020. While more than one in five older Americans does not drive, alternatives to driving are limited, especially in the rural communities or suburban settings where residents are increasingly "aging in place."



Source: California Department of Aging

The City may wish to pursue strategies that support mobility for seniors and people with mobility impairments, such as Complete Streets policies, senior-specific pedestrian improvements and neighborhood electric vehicles.

Tourism and Travel

A significant portion of Napa County's traffic congestion is generated from tourists traveling throughout the region. Specific strategies to reduce the number of vehicle trips generated by tourists while still encouraging travel may be developed. Strategies may include the following:

- "Park Once" program for tourists, which encourages walking and/or use of a shuttle service through the strategic placement and pricing of parking.
- Marketing car-free vacation options – for example, the Santa Barbara County Air Pollution Control District has a website and resources with information and promotions on vacationing in Santa Barbara without a car: www.santabarbaracarfree.org.
- Develop local and regional bicycling infrastructure to promote bike touring through St. Helena and the Napa Valley. The Route verte, a 4,000 km network of bikeways in Quebec, is a major tourism attractor for bicycling in Canada.

APPENDIX A: EXISTING LEVEL OF SERVICE STANDARDS

Transportation engineers and planners commonly use a rating system called level of service (LOS) to measure and describe the operational status of intersections on a local roadway network. LOS is a semi-quantitative description of an intersection's operation, ranging from LOS A (indicating free flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions with traffic flows exceeding design capacity, resulting in long queues and delays).

Roadway Analysis Method

Level-of-Service at roadway segments can be qualified using several methodologies. A daily LOS is a generalized approach, where the volume-to-capacity ratio is calculated from a theoretical daily roadway capacity based on the number of lanes and "capacity class" (e.g. highway, arterial, and collector). This approach is used where the road features are generally uniform over an extended distance (e.g. standard roadway curvature and grade, lane widths and intersection spacing). The daily LOS may not account for peak hour delays that occur resulting from extended queuing at closely spaced intersections or at high-demand turn movements.

Table 7 displays the definitions of the LOS thresholds based on the Highway Capacity Manual (TRB, 2000) and research conducted by Fehr & Peers.

TABLE 7
LOS DEFINITIONS FOR ROADWAY SEGMENTS

Roadway Classification	Number of Lanes	ADT Level-of-Service Capacity Threshold				
		A	B	C	D	E
Minor Arterial	2	9,000	10,700	12,000	13,500	15,000
Collector Street	2	5,250	6,125	7,000	7,875	8,750
Local Street	2	-	-	3,000	4,000	5,000

Source: Fehr & Peers 2009, based on the "Highway Capacity Manual", Transportation Research Board, 2000 and internal Fehr & Peers research.

The California Department of Transportation (Caltrans) is responsible for the maintenance and operation of state routes and highways including SR-29. Caltrans usually strives to maintain service levels on State facilities at the transition between LOS C and LOS D. Anything below LOS D can be considered unacceptable conditions. Other evaluation measures such as safety, vehicle-miles-traveled, and accessibility can be considered as well, particularly in downtown environments.

Table 8 displays the definitions of the LOS thresholds based average travel speed on arterials according to the Highway Capacity Manual (TRB, 2000).

TABLE 8
ROADWAY SEGMENTS LOS CRITERIA, HCM ARTERIAL OPERATIONS THRESHOLD

Urban Street Class	I	II	III	IV
	High-Speed Principal Arterial	Suburban Principal Arterial	Intermediate Minor Arterial	Urban Minor Arterial
Range of Free Flow Speed (FFS)	45-55 mph	35-45 mph	30-35 mph	25-35 mph
Typical FFS	50 mph	40 mph	35 mph	30 mph
LOS	Average Travel Speed (mph)			
A	>42 mph	>35 mph	>30 mph	>25 mph
B	35 – 42 mph	29 – 35 mph	25 – 30 mph	21 – 25 mph
C	28 – 34 mph	23 – 28 mph	19 – 24 mph	15 – 20 mph
D	22 – 27 mph	18 – 22 mph	15 – 18 mph	12 – 14 mph
E	16 – 21 mph	13 – 17 mph	11 – 14 mph	9 – 11 mph
F	< 16 mph	< 13 mph	< 11 mph	< 9 mph

Source: Highway Capacity Manual (TRB, 2000), Exhibit 15-2. Urban Street LOS by Class

The Main Street corridor reflects Urban Street Class IV because it has a high-density of driveways, significant amounts of on-street parking and roadside development, and significant pedestrian traffic (HCM-2000, Exhibit 10-4).

Intersection Analysis Method

Signalized Intersections

Signalized intersection traffic conditions and resulting LOS derive from the Highway Capacity Manual (HCM) – Special Report 209 (Chapter 16) method. This operations analysis uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay per vehicle. Control delay is the portion of the total delay attributed to signal operations and includes initial deceleration, queue move up time, stopped delay, and acceleration delay. Using this method, transportation engineers and planners base the LOS for a signalized intersection on the control delay per vehicle measured in seconds. Table 9 shows the relationship between delay and LOS for signalized intersections.

Unsignalized Intersections

Unsignalized Intersection (all-way stop-controlled and side-street stop-controlled) evaluations employ the HCM – Special Report 209 (Chapter 17) method. The average control delay per vehicle (measured in seconds) for each stop-controlled movement defines the operations for these intersections. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, the delay reported in this study represents the worst-case minor approach. For all-way stop-controlled intersections, the average control delay represents the whole intersection. Table 9 summarizes the relationship between delay and LOS for unsignalized intersections.

TABLE 9
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Driver's Perception and Traffic Operation Description	Signalized Intersection Control Delay per Vehicle (Seconds)	Unsignalized Intersection Control Delay per Vehicle (Seconds)
A	LOS A is characterized by light congestion. Motorists are generally able to maintain desired speeds on two and four lane roads and make lane changes on four lane roads. Motorists are still able to pass through traffic.	≤ 10.0	≤ 10.0
B	LOS B is characterized by light congestion. Motorists are generally able to maintain desired speeds on two and four lane roads and make lane changes on four lane roads. Motorists are still able to pass through traffic.	>10.0 and ≤ 20.0	>10.0 and ≤ 15.0
C	LOS C represents moderate traffic congestion. Average vehicle speeds continue to be near the motorist's desired speed for two and four lane roads. Lane change maneuvers on four lane roads increase to maintain desired speed. Turning traffic and slow vehicles begin to have an adverse impact on traffic flows. Occasionally, motorists do not clear the intersection on the first green phase.	>20.0 and ≤ 35.0	>15.0 and ≤ 25.0
D	LOS D is characterized by congestion with average vehicle speeds decreasing below the motorist's desired level for two and four lane roads. Lane change maneuvers on four lane roads are difficult to make and adversely affect traffic flow like turning traffic and slow vehicles. Multiple cars must wait through more than one green phase at a traffic signal. Stop-controlled approach motorists experience queuing due to a reduction in available gaps.	>35.0 and ≤ 55.0	>25.0 and ≤ 35.0
E	LOS E is the lowest grade possible without stop-and-go operations. Driving speeds are substantially reduced and brief periods of stop-and-go conditions can occur on two and four lane roads and lane changes are minimal. At signalized intersections, long vehicle queues can form waiting to be served by the signal's green phase. Insufficient gaps on the major streets cause extensive queuing on the stop-controlled approaches.	>55.0 and ≤ 80.0	>35.0 and ≤ 50.0
F	LOS F represents stop-and-go conditions for two and four lane roads. Traffic flow is constrained and lane changes minimal. Drivers at signalized intersections may wait several green phases prior to being served. Motorists on stop-controlled approaches experience insufficient gaps of suitable size to cross safely through a major traffic stream.	>80.0	>50.0

Source: *Highway Capacity Manual – Special Report 209* (Transportation Research Board, 2000).

LOS intersection standards were established under the City of St. Helena's General Plan of 1993 as follows:

- All signalized intersections in St. Helena should maintain LOS C except along Main Street, where LOS D is permitted. Exceptions to this policy are that lower service levels shall be permitted at any location where the existing LOS does not meet this standard and in which case the LOS cannot be worsened any further.

- All unsignalized intersections must maintain LOS C. If the LOS degrades below LOS C, an evaluation of the need for traffic signalization shall be undertaken according to standard Caltrans signal warrants as described below. If signals are not initially warranted, the location shall continue to be monitored for signal warrants on a regular basis.

Signal warrants consists of reviewing traffic levels, proximity of the intersection to other signals and to schools, accident frequency, and other factors against a set of warrants identified in the Traffic Manual (Caltrans 1995) and the Manual on Uniform Traffic Control Devices (FHWA 2003) to identify whether installing a traffic signal would be appropriate. The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. This study will utilize the peak hour volume- based Warrant 3 as one representative type of traffic signal warrant analysis.

APPENDIX B: EXISTING TRAFFIC CONDITIONS

Existing Roadway Conditions

Table 10 displays the LOS for a selection of roadway segments throughout St. Helena. The daily LOS is classified according to standards set forth in Table 5 of Appendix A.

TABLE 10
EXISTING ROADWAY SEGMENT LEVEL OF SERVICE, CITY STREETS

Roadway Segment	Location	Classification	Traffic Count Period			Daily LOS
			AM Peak Hour	PM Peak Hour	Daily	
Pratt Avenue	e/o Main	Collector Street	177	172	1,830	C
Grayson Avenue	w/o Main	Local Street	338	257	2,277	C
Valleyview Street	n/o Grayson	Collector Street	459	465	3,511	A
Charter Oak Avenue	w/o Main	Local Street	71	57	537	C
Pope Street	w/o Silverado Trail	Collector Street	468	607	5,999	C
Pope Street	e/o Main	Collector Street	459	572	5,943	C
Spring Street	w/o Main	Collector Street	230	246	2,808	A
Hunt Avenue	e/o Main	Local Street	87	53	889	C
Oak Avenue	s/o Adams	Collector Street	435	588	4,807	B
Silverado Trail	s/o Meadowood	Collector Street	951	1,094	10,911	C[1]
Madrona Avenue	w/o Main	Collector Street	343	412	3,899	A
Sulphur Springs Avenue	w/o Main	Local Street	193	225	2,175	C

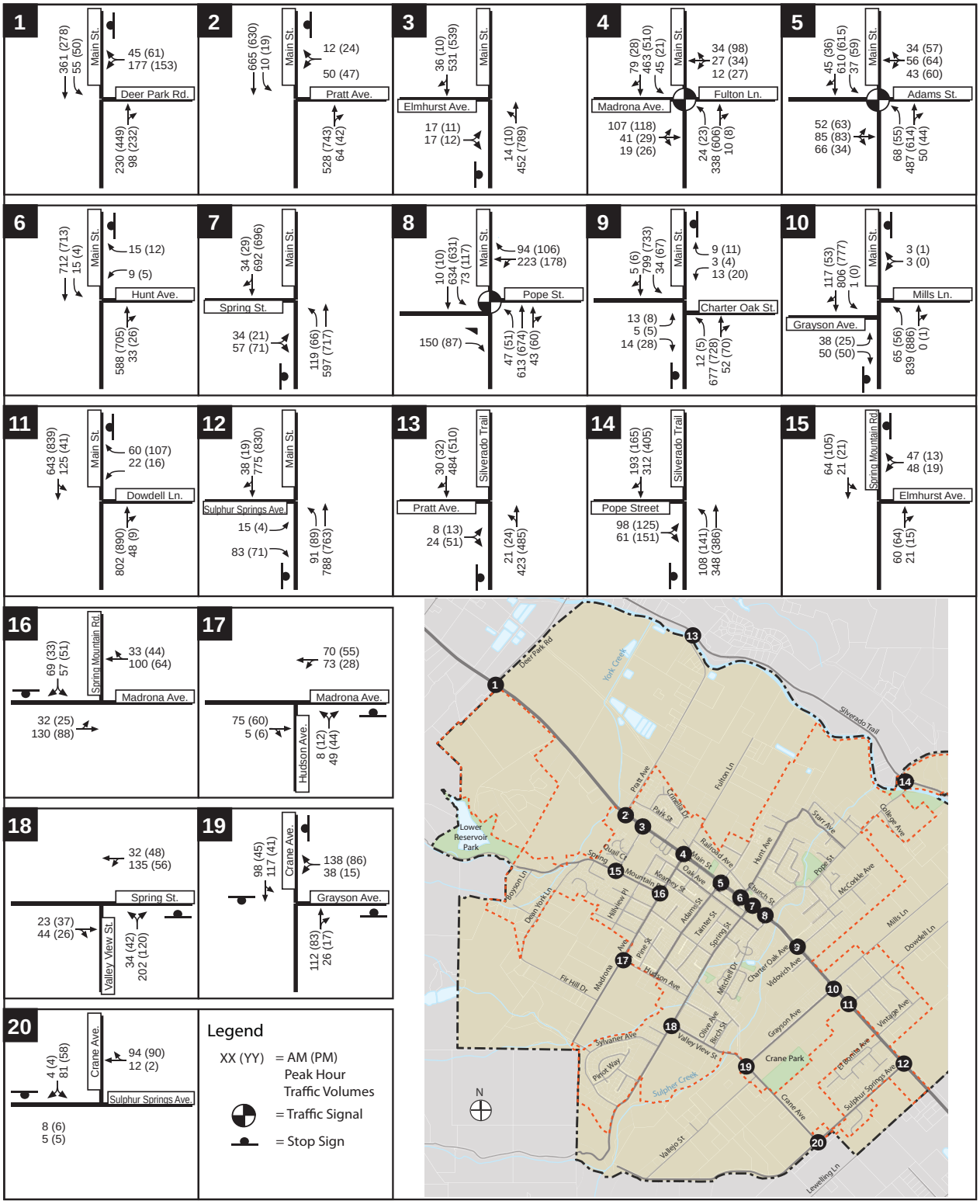
Notes:
1. Silverado Trail functions as a minor arterial even though it is classified as a rural collector.
Source: St. Helena General Plan Transportation Update, Background Report, Omni-Means (2007)

Table 11 displays the LOS for various Main Street roadway segments based on the average speed of traffic during the AM and PM peak hours. The LOS values are classified according to standards set forth in Table 6 of Appendix A.

TABLE 11
EXISTING ROADWAY SEGMENT LEVEL OF SERVICE, SR-29 (MAIN STREET)

		AM Peak Hour			PM Peak Hour		
Roadway	**Location**	**Count**	**Ave. Speed (mph)**	**LOS**	**Count**	**Ave. Speed (mph)**	**LOS**
SR-29/Main Street	n/o Deer Park Road	1,179	12	D	998	17	C
SR-29/Main Street	n/o Pratt Avenue	1,215	11	D	1,416	**8**	**E**
SR-29/Main Street	n/o Elmhurst Avenue	1,036	15	C	1,349	9	D
SR-29/Main Street	n/o Madrona Street/Fulton Lane	1,066	14	C	1,381	**9**	**E**
SR-29/Main Street	n/o Adams Street	1,265	10	D	1,424	**8**	**E**
SR-29/Main Street	n/o Hunt Avenue	1,330	9	D	1,434	**8**	**E**
SR-29/Main Street	n/o Spring Street	1,357	**9**	**E**	1,463	**8**	**E**
SR-29/Main Street	n/o Pope Street	1,424	**8**	**E**	1,538	**7**	**E**
SR-29/Main Street	n/o Charter Oak Avenue	1,537	**7**	**E**	1,519	**7**	**E**
SR-29/Main Street	n/o Grayson Avenue/Mills Lane	1,804	**7**	**E**	1,752	**8**	**E**
SR-29/Main Street	n/o Dowdell Lane	1,630	**9**	**E**	1,877	**7**	**E**
SR-29/Main Street	n/o Sulphur Springs Avenue	1,616	**9**	**E**	1,616	**9**	**E**

Notes:
Bold represents failing intersections according to the LOS standards set forth in Table 8, Appendix A.
Source: St. Helena General Plan Transportation Update, Background Report, Omni-Means (2007)



St. Helena General Plan

EXISTING
INTERSECTION GEOMETRIES AND TURNING MOVEMENTS

FIGURE 6

FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2009
SF08-0419\graphics\0419-6

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Appendix I: Transportation Modeling Report

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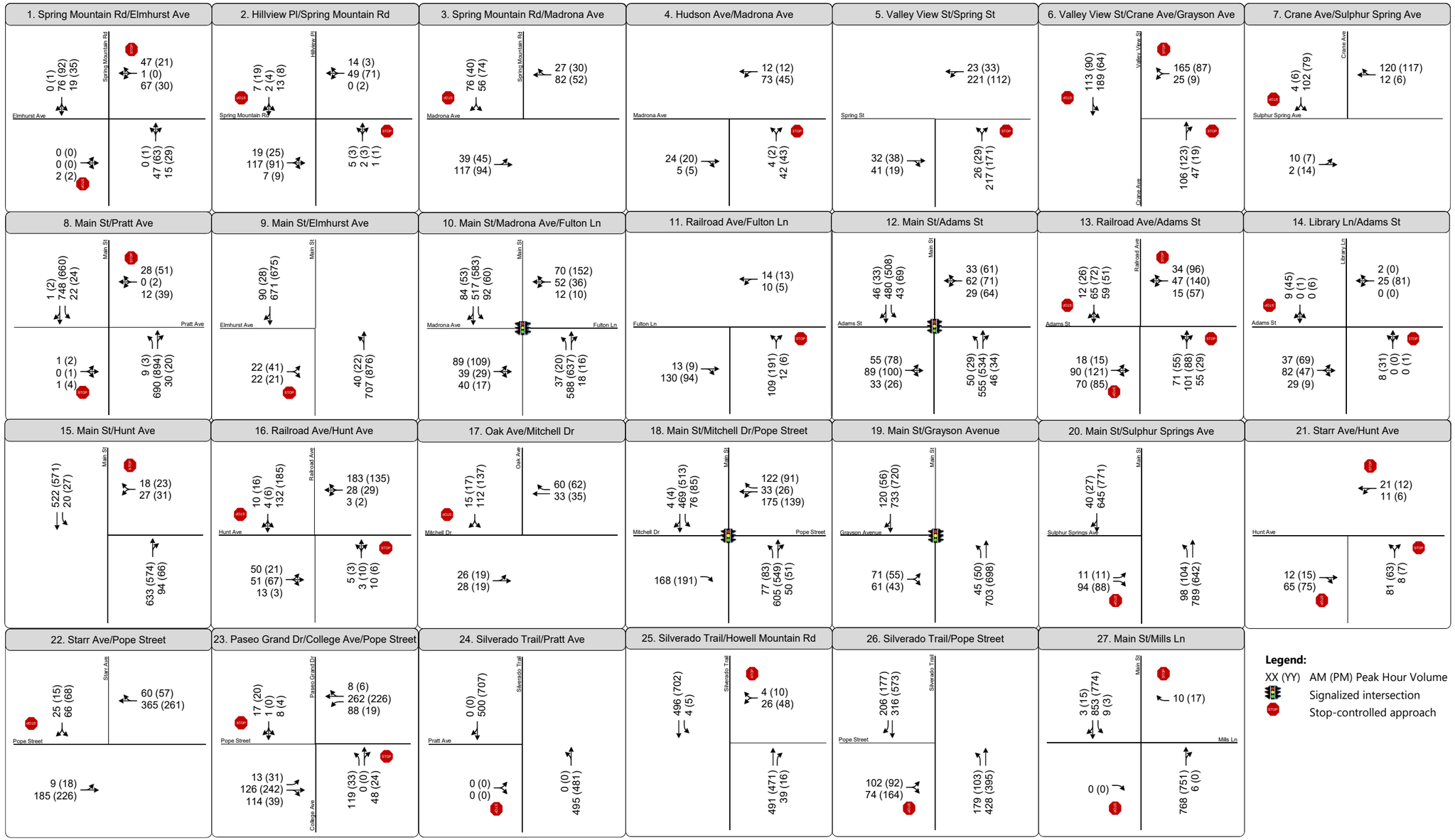
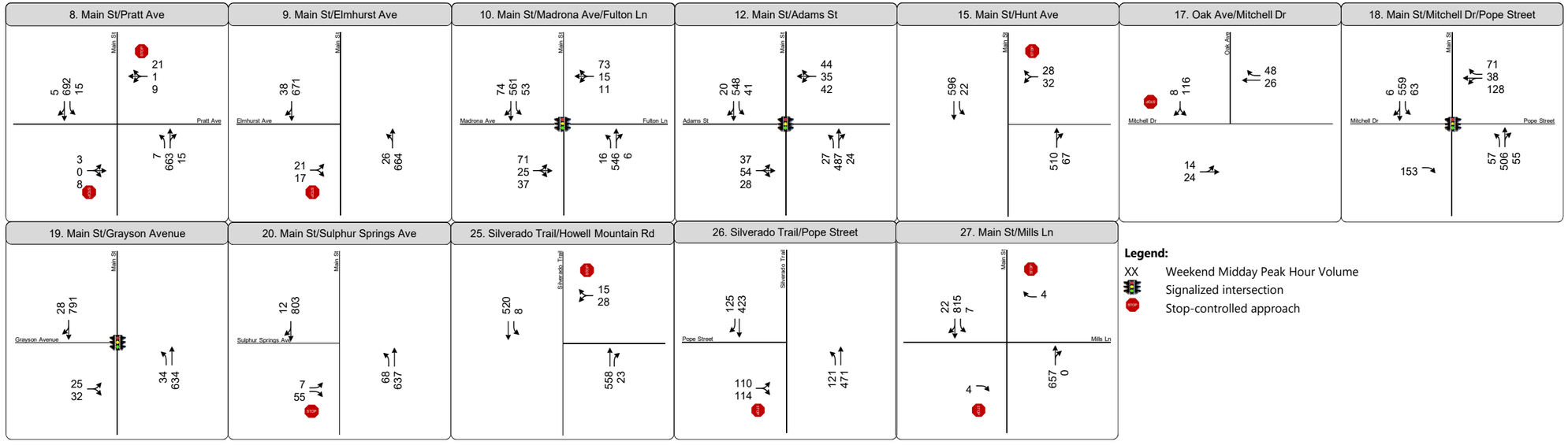
INTERSECTION TURNING MOVEMENT VOLUME FIGURES



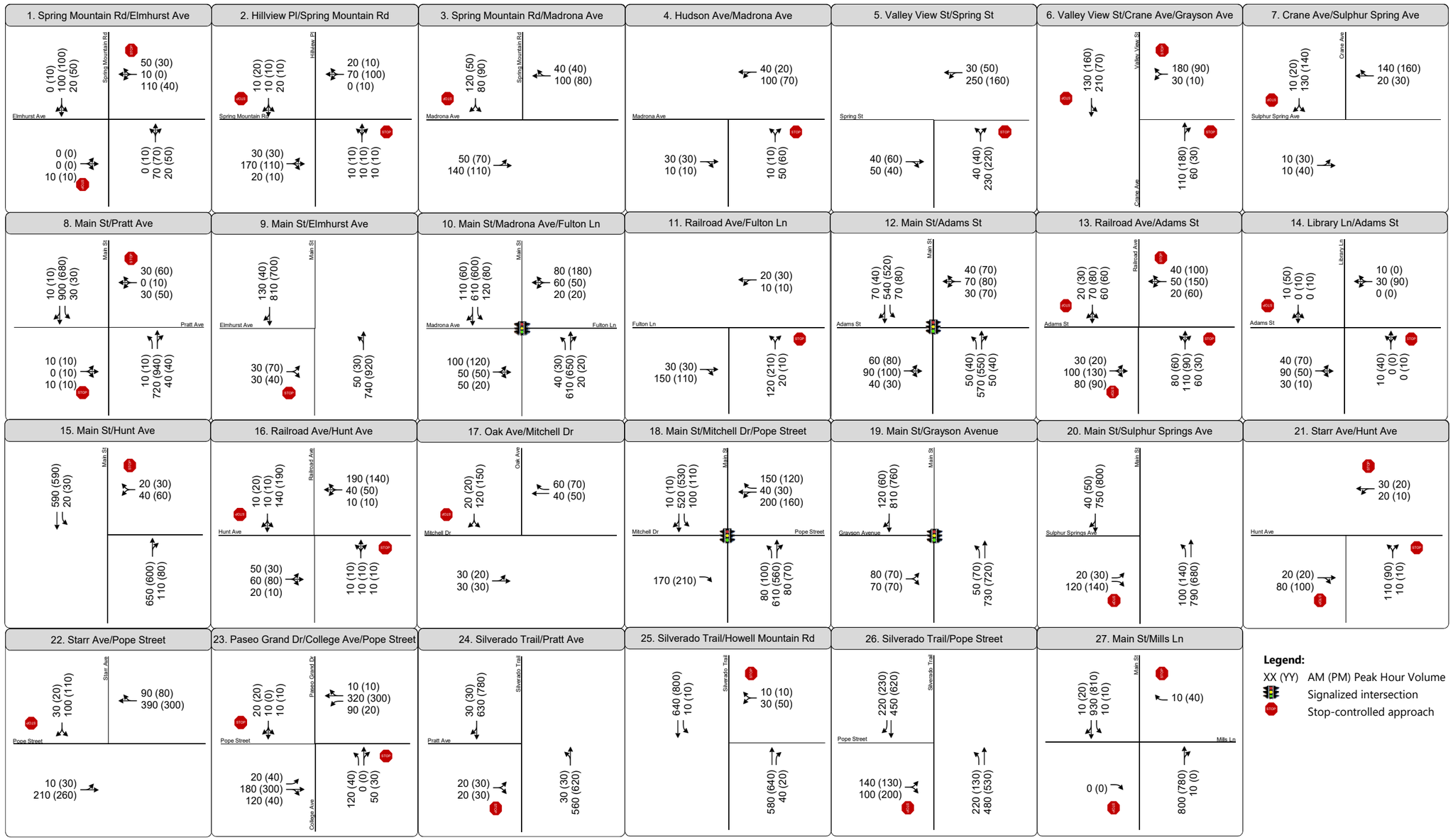
FEHR PEERS

Existing (Year 2018) Conditions
Weekday AM and PM Peak Hour Intersection Volumes, Lane Configurations and Intersection Control
FIGURE A1



FEHR PEERS

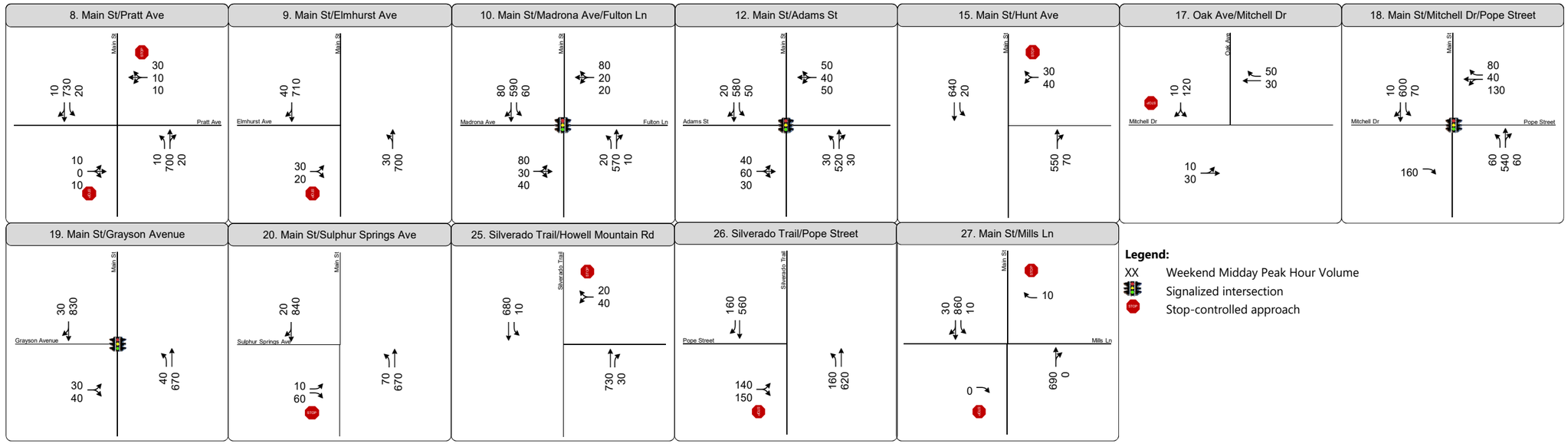
Existing (Year 2018) Conditions
Weekend Midday Peak Hour Intersection Volumes, Lane Configurations and Intersection Control
FIGURE 3A2



FEHR PEERS

Year 2040 General Plan Buildout Conditions
Weekday AM and PM Peak Hour Intersection Volumes,
Lane Configurations and Intersection Control

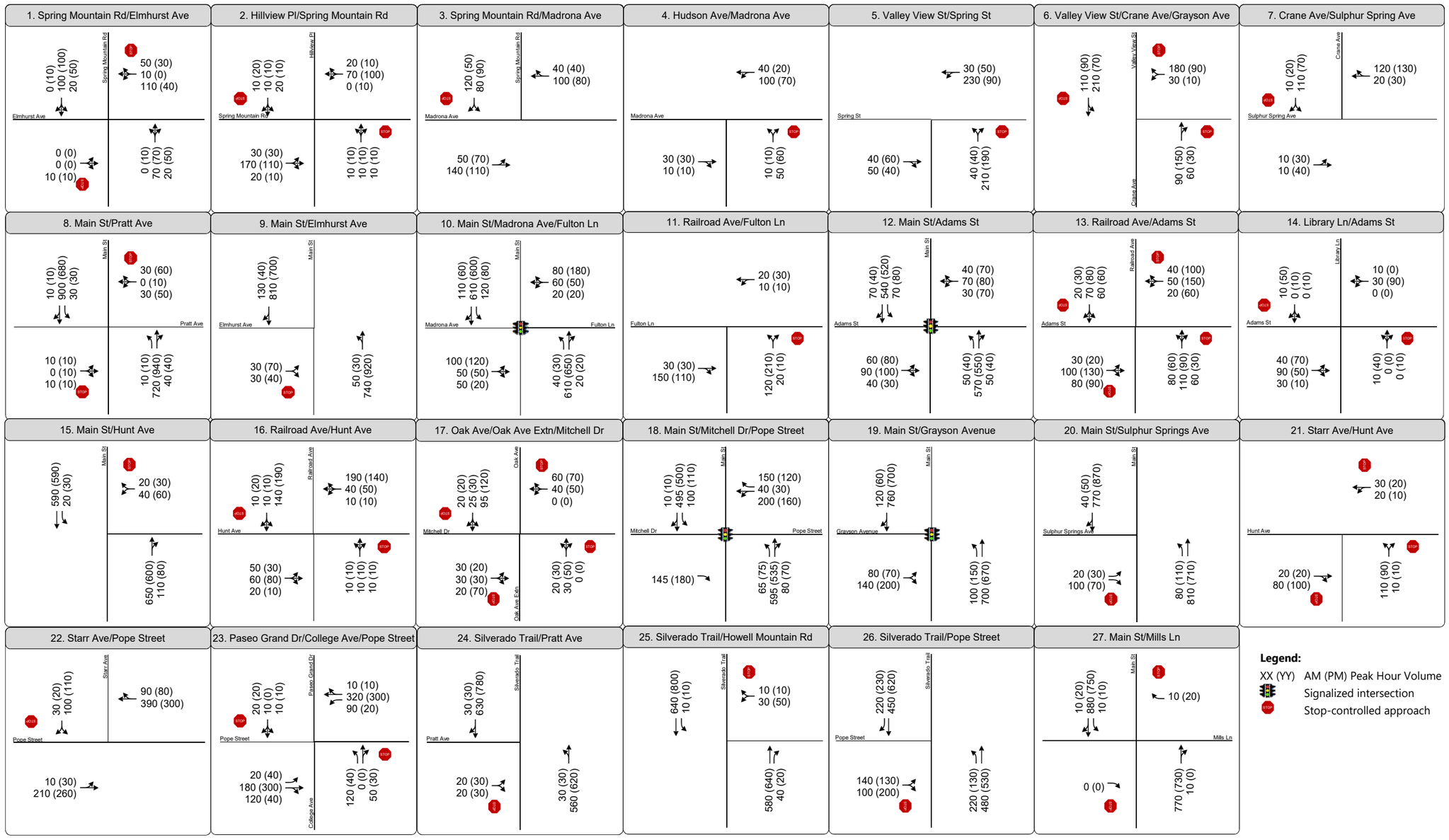
FIGURE A3
I-4



Year 2040 General Plan Buildout Conditions
Weekend Peak Hour Intersection Volumes,
Lane Configurations and Intersection Control

FEHR PEERS

I-5
FIGURE A4



Year 2040 General Plan Buildout with Oak Avenue Extension Conditions
Weekday AM and PM Peak Hour Intersection Volumes,
Lane Configurations and Intersection Control

FEHR PEERS

FIGURE A5

Year 2040 General Plan Buildout with Oak Avenue Extension Conditions
Weekday AM and PM Peak Hour Intersection Volumes,
Lane Configurations and Intersection Control
FIGURE A6

FEHR PEERS

EXISTING (YEAR 2018) CONDITIONS
SYNCHRO LOS OUTPUTS

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

Scenario: Existing Conditions
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	2	67	1	47	0	47	15	19	76	0
Future Vol, veh/h	0	0	2	67	1	47	0	47	15	19	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	3	94	1	66	0	66	21	27	107	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	271	248	107	240	238	77	107	0	0	87	0	0
Stage 1	161	161	-	77	77	-	-	-	-	-	-	-
Stage 2	110	87	-	163	161	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	679	653	944	712	661	981	1478	-	-	1503	-	-
Stage 1	839	763	-	929	829	-	-	-	-	-	-	-
Stage 2	893	821	-	837	763	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	623	641	944	700	648	981	1478	-	-	1503	-	-
Mov Cap-2 Maneuver	623	641	-	700	648	-	-	-	-	-	-	-
Stage 1	839	749	-	929	829	-	-	-	-	-	-	-
Stage 2	831	821	-	819	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	10.7	0	1.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1478	-	-	944	792	1503	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.205	0.018	-	-
HCM Control Delay (s)	0	-	-	8.8	10.7	7.4	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.8	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	117	7	0	49	14	5	2	1	13	2	7
Future Vol, veh/h	19	117	7	0	49	14	5	2	1	13	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	163	10	0	68	19	7	3	1	18	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	173	0	0	304	307	168	300	303	78
Stage 1	-	-	-	-	-	-	220	220	-	78	78	-
Stage 2	-	-	-	-	-	-	84	87	-	222	225	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1503	-	-	1398	-	-	646	605	874	650	608	980
Stage 1	-	-	-	-	-	-	780	719	-	928	828	-
Stage 2	-	-	-	-	-	-	922	821	-	778	716	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1503	-	-	1398	-	-	628	594	874	637	596	980
Mov Cap-2 Maneuver	-	-	-	-	-	-	628	594	-	637	596	-
Stage 1	-	-	-	-	-	-	765	705	-	910	828	-
Stage 2	-	-	-	-	-	-	910	821	-	759	702	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	10.7	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	641	1503	-	-	1398	-	-	712
HCM Lane V/C Ratio	0.017	0.018	-	-	-	-	-	0.043
HCM Control Delay (s)	10.7	7.4	0	-	0	-	-	10.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	117	82	27	56	76
Future Vol, veh/h	39	117	82	27	56	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	57	170	119	39	81	110

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	158	0	-	0	423	139
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1416	-	-	-	586	907
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1416	-	-	-	560	907
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1416	-	-	-	718
HCM Lane V/C Ratio	0.04	-	-	-	0.266
HCM Control Delay (s)	7.6	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1

Intersection	
Int Delay, s/veh	6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	5	73	12	4	42
Future Vol, veh/h	24	5	73	12	4	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	8	111	18	6	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	280	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1558	-	708	1028
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	798	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1558	-	657	1028
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	798	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.4	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1558	-
HCM Lane V/C Ratio	0.071	-	-	0.071	-
HCM Control Delay (s)	9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

HCM 2010 TWSC
5: Valley View St & Spring St

Scenario: Existing Conditions
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	8.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	41	221	23	26	217
Future Vol, veh/h	32	41	221	23	26	217
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	58	311	32	37	306

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	728	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	654	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1483	-	389	985
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1483	-	306	985
Mov Cap-2 Maneuver	-	-	-	-	306	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	515	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	796	-	-	1483	-
HCM Lane V/C Ratio	0.43	-	-	0.21	-
HCM Control Delay (s)	12.9	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.8	-

HCM 2010 AWSC
6: Crane Ave/Valley View St & Grayson Ave

Scenario: Existing Conditions
Time Period: AM Peak Hour

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	165	106	47	189	113
Future Vol, veh/h	25	165	106	47	189	113
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	239	154	68	274	164
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.4	10.5	16.5
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	13%	63%
Vol Thru, %	69%	0%	37%
Vol Right, %	31%	87%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	153	190	302
LT Vol	0	25	189
Through Vol	106	0	113
RT Vol	47	165	0
Lane Flow Rate	222	275	438
Geometry Grp	1	1	1
Degree of Util (X)	0.316	0.392	0.628
Departure Headway (Hd)	5.133	5.121	5.167
Convergence, Y/N	Yes	Yes	Yes
Cap	701	702	705
Service Time	3.166	3.158	3.167
HCM Lane V/C Ratio	0.317	0.392	0.621
HCM Control Delay	10.5	11.4	16.5
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.4	1.9	4.5

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	2	12	120	102	4
Future Vol, veh/h	10	2	12	120	102	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	3	16	162	138	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	178	0	-	0	128	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	31	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1392	-	-	-	864	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1392	-	-	-	855	956
Mov Cap-2 Maneuver	-	-	-	-	855	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	989	-

Approach	EB	WB	SB
HCM Control Delay, s	6.3	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1392	-	-	-	858
HCM Lane V/C Ratio	0.01	-	-	-	0.167
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

HCM 2010 TWSC
8: Main St & Pratt Ave

Scenario: Existing Conditions
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	12	0	28	9	690	30	22	748	1
Future Vol, veh/h	1	0	1	12	0	28	9	690	30	22	748	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	0	1	13	0	30	10	734	32	23	796	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1628	1629	797	1613	1613	750	797	0	0	766	0	0
Stage 1	843	843	-	770	770	-	-	-	-	-	-	-
Stage 2	785	786	-	843	843	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	81	101	385	83	104	410	821	-	-	843	-	-
Stage 1	357	378	-	392	409	-	-	-	-	-	-	-
Stage 2	384	402	-	357	378	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	97	385	80	100	410	821	-	-	843	-	-
Mov Cap-2 Maneuver	73	97	-	80	100	-	-	-	-	-	-	-
Stage 1	353	368	-	387	404	-	-	-	-	-	-	-
Stage 2	352	397	-	346	368	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.8	30.5	0.1	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	821	-	-	123	183	843	-	-
HCM Lane V/C Ratio	0.012	-	-	0.017	0.233	0.028	-	-
HCM Control Delay (s)	9.4	-	-	34.8	30.5	9.4	-	-
HCM Lane LOS	A	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	22	40	707	671	90
Future Vol, veh/h	22	22	40	707	671	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	24	43	760	722	97

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1617	771	819	0	-	0
Stage 1	771	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	113	398	805	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	103	398	805	-	-	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35.6	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	805	-	164	-	-
HCM Lane V/C Ratio	0.053	-	0.288	-	-
HCM Control Delay (s)	9.7	0	35.6	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.2	-	1.1	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: Existing Conditions
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	39	40	12	52	70	37	588	18	92	517	84
Future Volume (veh/h)	89	39	40	12	52	70	37	588	18	92	517	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	100	44	45	13	58	79	42	661	20	103	581	94
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	216	84	66	74	126	153	332	840	25	337	730	118
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	717	471	371	65	706	858	753	1265	38	749	1100	178
Grp Volume(v), veh/h	189	0	0	150	0	0	42	0	681	103	0	675
Grp Sat Flow(s),veh/h/ln	1559	0	0	1629	0	0	753	0	1304	749	0	1278
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	2.6	0.0	23.0	7.0	0.0	23.5
Cycle Q Clear(g_c), s	6.5	0.0	0.0	5.2	0.0	0.0	26.2	0.0	23.0	30.0	0.0	23.5
Prop In Lane	0.53		0.24	0.09		0.53	1.00		0.03	1.00		0.14
Lane Grp Cap(c), veh/h	366	0	0	353	0	0	332	0	865	337	0	849
V/C Ratio(X)	0.52	0.00	0.00	0.43	0.00	0.00	0.13	0.00	0.79	0.31	0.00	0.80
Avail Cap(c_a), veh/h	762	0	0	806	0	0	699	0	1500	702	0	1471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	0.0	23.3	0.0	0.0	16.8	0.0	7.4	18.0	0.0	7.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	0.2	0.0	2.3	0.7	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	0.0	2.4	0.0	0.0	0.6	0.0	8.7	1.5	0.0	8.6
LnGrp Delay(d),s/veh	24.5	0.0	0.0	23.9	0.0	0.0	17.1	0.0	9.7	18.7	0.0	10.0
LnGrp LOS	C			C			B		A	B		A
Approach Vol, veh/h		189			150			723			778	
Approach Delay, s/veh		24.5			23.9			10.1			11.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		46.2		16.3		46.2		16.3
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		28.2		8.5		32.0		7.2
Green Ext Time (p_c), s		9.6		0.9		9.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	130	10	14	109	12
Future Vol, veh/h	13	130	10	14	109	12
Conflicting Peds, #/hr	0	2	2	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	157	12	17	131	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	175	0	139	98
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1395	-	852	955
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1392	-	842	952
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	977	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	852	-	-	1392	-
HCM Lane V/C Ratio	0.171	-	-	0.009	-
HCM Control Delay (s)	10.1	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: Existing Conditions
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	89	33	29	62	33	50	555	46	43	480	46
Future Volume (veh/h)	55	89	33	29	62	33	50	555	46	43	480	46
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.91	0.96		0.93	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	60	97	36	32	67	36	54	603	50	47	522	50
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	136	184	59	106	192	87	142	644	53	132	628	60
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.08	0.54	0.54	0.07	0.53	0.53
Sat Flow, veh/h	369	934	299	237	972	440	1757	1193	99	1757	1177	113
Grp Volume(v), veh/h	193	0	0	135	0	0	54	0	653	47	0	572
Grp Sat Flow(s),veh/h/ln	1602	0	0	1649	0	0	1757	0	1292	1757	0	1289
Q Serve(g_s), s	2.7	0.0	0.0	0.0	0.0	0.0	2.2	0.0	35.3	1.9	0.0	27.9
Cycle Q Clear(g_c), s	7.8	0.0	0.0	5.1	0.0	0.0	2.2	0.0	35.3	1.9	0.0	27.9
Prop In Lane	0.31		0.19	0.24		0.27	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	379	0	0	384	0	0	142	0	698	132	0	688
V/C Ratio(X)	0.51	0.00	0.00	0.35	0.00	0.00	0.38	0.00	0.94	0.36	0.00	0.83
Avail Cap(c_a), veh/h	565	0	0	573	0	0	375	0	1033	375	0	1031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	26.2	0.0	0.0	32.7	0.0	16.0	33.0	0.0	14.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.6	0.0	9.2	0.6	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	2.5	0.0	0.0	1.1	0.0	14.1	0.9	0.0	10.3
LnGrp Delay(d),s/veh	27.6	0.0	0.0	26.4	0.0	0.0	33.3	0.0	25.3	33.6	0.0	16.9
LnGrp LOS	C			C			C		C	C		B
Approach Vol, veh/h		193			135			707			619	
Approach Delay, s/veh		27.6			26.4			25.9			18.2	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	44.8		19.5	10.3	45.2		19.5
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	4.2	29.9		7.1	3.9	37.3		9.8
Green Ext Time (p_c), s	0.0	2.8		0.3	0.0	3.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	90	70	15	47	34	71	101	55	59	65	12
Future Vol, veh/h	18	90	70	15	47	34	71	101	55	59	65	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	21	105	81	17	55	40	83	117	64	69	76	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	9.1	10.6	9.7
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	16%	43%
Vol Thru, %	44%	51%	49%	48%
Vol Right, %	24%	39%	35%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	227	178	96	136
LT Vol	71	18	15	59
Through Vol	101	90	47	65
RT Vol	55	70	34	12
Lane Flow Rate	264	207	112	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.356	0.282	0.158	0.224
Departure Headway (Hd)	4.858	4.912	5.08	5.106
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	722	697	696
Service Time	2.939	2.999	3.178	3.197
HCM Lane V/C Ratio	0.36	0.287	0.161	0.227
HCM Control Delay	10.6	10	9.1	9.7
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.6	1.2	0.6	0.9

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	82	29	0	25	2	8	0	0	0	0	9
Future Vol, veh/h	37	82	29	0	25	2	8	0	0	0	0	9
Conflicting Peds, #/hr	5	0	3	3	0	5	1	0	2	2	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	49	108	38	0	33	3	11	0	0	0	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	41	0	0	149	0	0	270	269	132	267	287	41
Stage 1	-	-	-	-	-	-	228	228	-	40	40	-
Stage 2	-	-	-	-	-	-	42	41	-	227	247	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1562	-	-	1426	-	-	681	636	915	684	621	1027
Stage 1	-	-	-	-	-	-	772	714	-	972	860	-
Stage 2	-	-	-	-	-	-	970	859	-	773	700	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1555	-	-	1422	-	-	653	609	911	662	595	1021
Mov Cap-2 Maneuver	-	-	-	-	-	-	653	609	-	662	595	-
Stage 1	-	-	-	-	-	-	743	688	-	934	856	-
Stage 2	-	-	-	-	-	-	958	855	-	745	674	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0	10.6	8.6
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	653	1555	-	-	1422	-	-	1021
HCM Lane V/C Ratio	0.016	0.031	-	-	-	-	-	0.012
HCM Control Delay (s)	10.6	7.4	0	-	0	-	-	8.6
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	18	633	94	20	522
Future Vol, veh/h	27	18	633	94	20	522
Conflicting Peds, #/hr	0	2	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	19	659	98	21	544

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1299	715	0	0	762	0
Stage 1	713	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	177	429	-	-	846	-
Stage 1	484	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	172	426	-	-	842	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	469	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.1	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	345	842	-
HCM Lane V/C Ratio	-	-	0.136	0.025	-
HCM Control Delay (s)	-	-	17.1	9.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

HCM 2010 TWSC
16: Railroad Ave & Hunt Ave

Scenario: Existing Conditions
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	51	13	3	28	183	5	3	10	132	4	10
Future Vol, veh/h	50	51	13	3	28	183	5	3	10	132	4	10
Conflicting Peds, #/hr	15	0	15	15	0	15	0	0	4	4	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	60	61	16	4	34	220	6	4	12	159	5	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	269	0	0	92	0	0	365	481	88	368	379	159
Stage 1	-	-	-	-	-	-	204	204	-	167	167	-
Stage 2	-	-	-	-	-	-	161	277	-	201	212	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1289	-	-	1496	-	-	589	483	968	587	552	884
Stage 1	-	-	-	-	-	-	796	731	-	833	758	-
Stage 2	-	-	-	-	-	-	839	679	-	799	725	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1271	-	-	1475	-	-	546	445	951	543	509	871
Mov Cap-2 Maneuver	-	-	-	-	-	-	546	445	-	543	509	-
Stage 1	-	-	-	-	-	-	746	686	-	781	745	-
Stage 2	-	-	-	-	-	-	820	667	-	743	680	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	0.1	10.5	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	681	1271	-	-	1475	-	-	556
HCM Lane V/C Ratio	0.032	0.047	-	-	0.002	-	-	0.316
HCM Control Delay (s)	10.5	8	0	-	7.4	0	-	14.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.4

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	28	33	60	112	15
Future Vol, veh/h	26	28	33	60	112	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	36	42	77	144	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	119	0	-	0	144	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	102	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1463	-	-	-	846	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	920	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	827	1026
Mov Cap-2 Maneuver	-	-	-	-	827	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1463	-	-	-	846
HCM Lane V/C Ratio	0.023	-	-	-	0.192
HCM Control Delay (s)	7.5	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: Existing Conditions
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	168	175	33	122	77	605	50	76	469	4
Future Volume (veh/h)	0	0	168	175	33	122	77	605	50	76	469	4
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85	1.00		0.91	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	181	188	35	131	83	651	54	82	504	4
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	121	185	231	43	221	110	689	21	110	707	6
Arrive On Green	0.00	0.00	0.07	0.15	0.15	0.15	0.06	0.54	0.54	0.06	0.54	0.54
Sat Flow, veh/h	0	1845	1328	1492	278	1430	1757	1191	99	1757	1298	10
Grp Volume(v), veh/h	0	0	181	223	0	131	83	0	705	82	0	508
Grp Sat Flow(s),veh/h/ln	0	1845	1328	1770	0	1430	1757	0	1290	1757	0	1309
Q Serve(g_s), s	0.0	0.0	9.0	16.8	0.0	11.7	6.4	0.0	75.0	6.3	0.0	39.8
Cycle Q Clear(g_c), s	0.0	0.0	9.0	16.8	0.0	11.7	6.4	0.0	75.0	6.3	0.0	39.8
Prop In Lane	0.00		1.00	0.84		1.00	1.00		0.08	1.00		0.01
Lane Grp Cap(c), veh/h	0	121	185	274	0	221	110	0	710	110	0	713
V/C Ratio(X)	0.00	0.00	0.98	0.82	0.00	0.59	0.75	0.00	0.99	0.75	0.00	0.71
Avail Cap(c_a), veh/h	0	121	185	450	0	364	319	0	702	319	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	60.2	56.3	0.0	54.2	63.5	0.0	31.3	63.5	0.0	23.3
Incr Delay (d2), s/veh	0.0	0.0	59.4	5.9	0.0	2.5	3.9	0.0	32.3	3.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	250.8	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.9	8.7	0.0	4.8	3.2	0.0	82.6	3.2	0.0	15.0
LnGrp Delay(d),s/veh	0.0	0.0	119.6	62.2	0.0	56.7	67.4	0.0	314.4	67.2	0.0	26.2
LnGrp LOS			F	E		E	E		F	E		C
Approach Vol, veh/h		181			354			788			590	
Approach Delay, s/veh		119.6			60.1			288.4			31.9	
Approach LOS		F			E			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	82.7		29.0	12.3	82.7		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	8.4	41.8		18.8	8.3	77.0		11.0
Green Ext Time (p_c), s	0.1	2.4		1.7	0.1	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	151.1
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: Existing Conditions
Time Period: AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	61	45	703	733	120
Future Volume (veh/h)	71	61	45	703	733	120
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	75	64	47	740	772	126
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	99	85	117	1032	739	121
Arrive On Green	0.11	0.11	0.07	0.79	0.67	0.67
Sat Flow, veh/h	892	761	1757	1311	1100	179
Grp Volume(v), veh/h	140	0	47	740	0	898
Grp Sat Flow(s),veh/h/ln	1666	0	1757	1311	0	1279
Q Serve(g_s), s	7.9	0.0	2.5	26.6	0.0	65.0
Cycle Q Clear(g_c), s	7.9	0.0	2.5	26.6	0.0	65.0
Prop In Lane	0.54	0.46	1.00			0.14
Lane Grp Cap(c), veh/h	185	0	117	1032	0	860
V/C Ratio(X)	0.76	0.00	0.40	0.72	0.00	1.04
Avail Cap(c_a), veh/h	689	0	727	1032	0	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	0.0	43.3	5.0	0.0	15.8
Incr Delay (d2), s/veh	2.4	0.0	0.8	2.4	0.0	42.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	1.2	10.1	0.0	32.7
LnGrp Delay(d),s/veh	44.1	0.0	44.1	7.4	0.0	58.8
LnGrp LOS	D		D	A		F
Approach Vol, veh/h	140			787	898	
Approach Delay, s/veh	44.1			9.6	58.8	
Approach LOS	D			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.2	70.1				81.3		15.4
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	7.3	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	4.5	67.0				28.6		9.9
Green Ext Time (p_c), s	0.0	0.0				6.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	94	98	789	645	40
Future Vol, veh/h	11	94	98	789	645	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	98	102	822	672	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1719	693	714	0	-	0
Stage 1	693	-	-	-	-	-
Stage 2	1026	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	98	442	882	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	87	442	882	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	882	-	178	442	-	-
HCM Lane V/C Ratio	0.116	-	0.064	0.222	-	-
HCM Control Delay (s)	9.6	-	26.6	15.4	-	-
HCM Lane LOS	A	-	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.2	0.8	-	-

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	12	65	11	21	81	8
Future Vol, veh/h	12	65	11	21	81	8
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	76	13	25	95	9
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.6	8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	91%	0%	34%
Vol Thru, %	0%	16%	66%
Vol Right, %	9%	84%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	77	32
LT Vol	81	0	11
Through Vol	0	12	21
RT Vol	8	65	0
Lane Flow Rate	105	91	38
Geometry Grp	1	1	1
Degree of Util (X)	0.125	0.092	0.045
Departure Headway (Hd)	4.3	3.656	4.274
Convergence, Y/N	Yes	Yes	Yes
Cap	830	967	829
Service Time	2.344	1.73	2.348
HCM Lane V/C Ratio	0.127	0.094	0.046
HCM Control Delay	8	7.1	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	0.1

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	185	365	60	66	25
Future Vol, veh/h	9	185	365	60	66	25
Conflicting Peds, #/hr	4	0	0	4	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	10	208	410	67	74	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	481	0	-	0	676	449
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1076	-	-	-	417	608
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1072	-	-	-	409	605
Mov Cap-2 Maneuver	-	-	-	-	409	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1072	-	-	-	449
HCM Lane V/C Ratio	0.009	-	-	-	0.228
HCM Control Delay (s)	8.4	0	-	-	15.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	126	114	88	262	8	119	0	48	8	1	17
Future Vol, veh/h	13	126	114	88	262	8	119	0	48	8	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	15	143	130	100	298	9	135	0	55	9	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	307	0	0	273	0	0	751	745	208	769	806	303
Stage 1	-	-	-	-	-	-	238	238	-	503	503	-
Stage 2	-	-	-	-	-	-	513	507	-	266	303	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1248	-	-	1284	-	-	326	341	830	317	314	734
Stage 1	-	-	-	-	-	-	763	706	-	549	540	-
Stage 2	-	-	-	-	-	-	542	538	-	737	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1248	-	-	1284	-	-	295	311	830	276	286	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	311	-	276	286	-
Stage 1	-	-	-	-	-	-	754	698	-	542	498	-
Stage 2	-	-	-	-	-	-	486	496	-	680	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2	22.1	13.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	830	1248	-	-	1284	-	-	467
HCM Lane V/C Ratio	0.458	0.066	0.012	-	-	0.078	-	-	0.063
HCM Control Delay (s)	27.1	9.6	7.9	-	-	8	-	-	13.2
HCM Lane LOS	D	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2.3	0.2	0	-	-	0.3	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	495	500	0
Future Vol, veh/h	0	0	0	495	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	516	521	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1037	521	521	0	-	0
Stage 1	521	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	255	553	1040	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	255	553	1040	-	-	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	4	491	39	4	496
Future Vol, veh/h	26	4	491	39	4	496
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	4	506	40	4	511

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1025	506	0	0	546	0
Stage 1	506	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	259	564	-	-	1018	-
Stage 1	603	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	258	564	-	-	1018	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	1018	-
HCM Lane V/C Ratio	-	-	0.076	0.004	-
HCM Control Delay (s)	-	-	14.6	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	102	74	179	428	316	206
Future Vol, veh/h	102	74	179	428	316	206
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	106	77	186	446	329	215

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1147	329	544	0	-	0
Stage 1	329	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	219	710	1020	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	710	1020	-	-	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	432	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.1	2.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	305	-	-
HCM Lane V/C Ratio	0.183	-	0.601	-	-
HCM Control Delay (s)	9.3	-	33.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.7	-	3.6	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	0	768	6	9	853	3
Future Vol, veh/h	0	0	0	0	0	10	0	768	6	9	853	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	10	0	784	6	9	870	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1682	1680	872	1677	1678	787	-	0	0	790	0	0
Stage 1	890	890	-	787	787	-	-	-	-	-	-	-
Stage 2	792	790	-	890	891	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	-	-	-	2.227	-	-
Pot Cap-1 Maneuver	74	94	348	75	94	390	0	-	-	826	-	-
Stage 1	336	360	-	383	401	-	0	-	-	-	-	-
Stage 2	381	400	-	336	359	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	71	93	348	74	93	390	-	-	-	826	-	-
Mov Cap-2 Maneuver	191	212	-	196	214	-	-	-	-	-	-	-
Stage 1	336	356	-	383	401	-	-	-	-	-	-	-
Stage 2	371	400	-	332	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.5	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	390	826	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.011	-	-
HCM Control Delay (s)	-	-	0	14.5	9.4	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-	-

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

Scenario: Existing Conditions
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	2	30	0	21	1	63	29	35	92	1
Future Vol, veh/h	0	0	2	30	0	21	1	63	29	35	92	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	3	39	0	28	1	83	38	46	121	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	332	337	122	319	318	102	122	0	0	121	0	0
Stage 1	214	214	-	104	104	-	-	-	-	-	-	-
Stage 2	118	123	-	215	214	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	620	582	926	632	597	950	1459	-	-	1460	-	-
Stage 1	786	724	-	899	807	-	-	-	-	-	-	-
Stage 2	884	792	-	785	724	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	586	562	926	614	576	950	1459	-	-	1460	-	-
Mov Cap-2 Maneuver	586	562	-	614	576	-	-	-	-	-	-	-
Stage 1	785	699	-	898	806	-	-	-	-	-	-	-
Stage 2	857	791	-	756	699	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	10.5	0.1	2.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	926	719	1460	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.093	0.032	-	-
HCM Control Delay (s)	7.5	0	-	8.9	10.5	7.5	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-

HCM 2010 TWSC
2: Hillview Pl & Spring Mountain Rd

Scenario: Existing Conditions
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	91	9	2	71	3	3	3	1	8	4	19
Future Vol, veh/h	25	91	9	2	71	3	3	3	1	8	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	111	11	2	87	4	4	4	1	10	5	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	91	0	0	122	0	0	284	272	117	272	275	89
Stage 1	-	-	-	-	-	-	177	177	-	93	93	-
Stage 2	-	-	-	-	-	-	107	95	-	179	182	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1498	-	-	1459	-	-	666	633	932	678	631	966
Stage 1	-	-	-	-	-	-	822	751	-	912	816	-
Stage 2	-	-	-	-	-	-	896	814	-	820	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1498	-	-	1459	-	-	635	618	932	662	616	966
Mov Cap-2 Maneuver	-	-	-	-	-	-	635	618	-	662	616	-
Stage 1	-	-	-	-	-	-	804	734	-	892	815	-
Stage 2	-	-	-	-	-	-	868	813	-	797	731	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	10.6	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	657	1498	-	-	1459	-	-	811
HCM Lane V/C Ratio	0.013	0.02	-	-	0.002	-	-	0.047
HCM Control Delay (s)	10.6	7.5	0	-	7.5	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	94	52	30	74	40
Future Vol, veh/h	45	94	52	30	74	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	64	134	74	43	106	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	117	0	-	0	358	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	262	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1465	-	-	-	638	958
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1465	-	-	-	608	958
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	780	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1465	-	-	-	697
HCM Lane V/C Ratio	0.044	-	-	-	0.234
HCM Control Delay (s)	7.6	0	-	-	11.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection	
Int Delay, s/veh	5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	5	45	12	2	43
Future Vol, veh/h	20	5	45	12	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	23	6	52	14	2	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	29	0	144	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	118	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1578	-	846	1047
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1578	-	818	1047
Mov Cap-2 Maneuver	-	-	-	-	818	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1034	-	-	1578	-
HCM Lane V/C Ratio	0.051	-	-	0.033	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 2010 TWSC
5: Valley View St & Spring St

Scenario: Existing Conditions
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	19	112	33	29	171
Future Vol, veh/h	38	19	112	33	29	171
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	51	26	151	45	39	231

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	411	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1515	-	595	998
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	534	998
Mov Cap-2 Maneuver	-	-	-	-	534	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	886	-	-	1515	-
HCM Lane V/C Ratio	0.305	-	-	0.1	-
HCM Control Delay (s)	10.8	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.3	-

HCM 2010 AWSC
6: Crane Ave/Valley View St & Grayson Ave

Scenario: Existing Conditions
Time Period: PM Peak Hour

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	87	123	19	64	90
Future Vol, veh/h	9	87	123	19	64	90
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	118	166	26	86	122
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.8	9.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	42%
Vol Thru, %	87%	0%	58%
Vol Right, %	13%	91%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	142	96	154
LT Vol	0	9	64
Through Vol	123	0	90
RT Vol	19	87	0
Lane Flow Rate	192	130	208
Geometry Grp	1	1	1
Degree of Util (X)	0.234	0.156	0.262
Departure Headway (Hd)	4.391	4.324	4.53
Convergence, Y/N	Yes	Yes	Yes
Cap	819	830	793
Service Time	2.414	2.349	2.553
HCM Lane V/C Ratio	0.234	0.157	0.262
HCM Control Delay	8.8	8.2	9.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.9	0.6	1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	14	6	117	79	6
Future Vol, veh/h	7	14	6	117	79	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	9	18	8	146	99	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	154	0	-	0	117	81
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	36	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1420	-	-	-	877	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1420	-	-	-	872	976
Mov Cap-2 Maneuver	-	-	-	-	872	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1420	-	-	-	879
HCM Lane V/C Ratio	0.006	-	-	-	0.121
HCM Control Delay (s)	7.6	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1	4	39	2	51	3	894	20	24	660	2
Future Vol, veh/h	2	1	4	39	2	51	3	894	20	24	660	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	1	4	43	2	57	3	993	22	27	733	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1828	1809	734	1801	1799	1004	735	0	0	1015	0	0
Stage 1	788	788	-	1010	1010	-	-	-	-	-	-	-
Stage 2	1040	1021	-	791	789	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	59	78	418	61	79	292	866	-	-	679	-	-
Stage 1	383	401	-	288	316	-	-	-	-	-	-	-
Stage 2	277	312	-	381	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	75	418	58	76	292	866	-	-	679	-	-
Mov Cap-2 Maneuver	45	75	-	58	76	-	-	-	-	-	-	-
Stage 1	382	385	-	287	315	-	-	-	-	-	-	-
Stage 2	221	311	-	361	385	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42.4	156	0	0.4
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	866	-	-	104	105	679	-	-
HCM Lane V/C Ratio	0.004	-	-	0.075	0.974	0.039	-	-
HCM Control Delay (s)	9.2	-	-	42.4	156	10.5	-	-
HCM Lane LOS	A	-	-	E	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	6	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	21	22	876	675	28
Future Vol, veh/h	41	21	22	876	675	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	46	23	24	973	750	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1787	766	781	0	-	0
Stage 1	766	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	89	401	832	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	83	401	832	-	-	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	346	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77.3	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	832	-	113	-	-
HCM Lane V/C Ratio	0.029	-	0.61	-	-
HCM Control Delay (s)	9.5	0	77.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	3	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: Existing Conditions
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	29	17	10	36	152	20	637	16	60	583	53
Future Volume (veh/h)	109	29	17	10	36	152	20	637	16	60	583	53
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1324	1863	1350
Adj Flow Rate, veh/h	111	30	17	10	37	155	20	650	16	61	595	54
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	66	27	72	63	227	475	828	20	278	1084	98
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	843	359	145	34	341	1237	779	1286	32	545	1683	153
Grp Volume(v), veh/h	158	0	0	202	0	0	20	0	666	61	0	649
Grp Sat Flow(s),veh/h/ln	1347	0	0	1612	0	0	779	0	1318	545	0	1836
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	0.0	0.8	0.0	20.9	5.2	0.0	11.2
Cycle Q Clear(g_c), s	6.1	0.0	0.0	6.7	0.0	0.0	12.0	0.0	20.9	26.1	0.0	11.2
Prop In Lane	0.70		0.11	0.05		0.77	1.00		0.02	1.00		0.08
Lane Grp Cap(c), veh/h	354	0	0	362	0	0	475	0	849	278	0	1182
V/C Ratio(X)	0.45	0.00	0.00	0.56	0.00	0.00	0.04	0.00	0.78	0.22	0.00	0.55
Avail Cap(c_a), veh/h	773	0	0	874	0	0	950	0	1652	610	0	2300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	0.0	21.9	0.0	0.0	8.9	0.0	7.4	16.7	0.0	5.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.0	0.0	0.0	0.1	0.0	2.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	3.1	0.0	0.0	0.2	0.0	7.9	0.8	0.0	5.8
LnGrp Delay(d),s/veh	22.2	0.0	0.0	22.9	0.0	0.0	9.0	0.0	9.7	17.3	0.0	6.2
LnGrp LOS	C			C			A		A	B		A
Approach Vol, veh/h		158			202			686			710	
Approach Delay, s/veh		22.2			22.9			9.7			7.2	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		41.7		15.7		41.7		15.7
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		22.9		8.1		28.1		8.7
Green Ext Time (p_c), s		9.1		0.8		8.9		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	94	5	13	191	6
Future Vol, veh/h	9	94	5	13	191	6
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	113	6	16	230	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	98	71
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	28	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1460	-	901	991
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	995	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1457	-	896	988
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1457	-
HCM Lane V/C Ratio	0.264	-	-	0.004	-
HCM Control Delay (s)	10.4	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: Existing Conditions
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	100	26	64	71	61	29	534	34	69	508	33
Future Volume (veh/h)	78	100	26	64	71	61	29	534	34	69	508	33
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.87	0.97		0.84	1.00		0.90	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	80	103	27	66	73	63	30	551	35	71	524	34
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	200	45	152	154	109	100	597	38	168	645	42
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.06	0.49	0.49	0.09	0.53	0.53
Sat Flow, veh/h	474	904	203	389	696	492	1774	1222	78	1774	1225	79
Grp Volume(v), veh/h	210	0	0	202	0	0	30	0	586	71	0	558
Grp Sat Flow(s),veh/h/ln	1581	0	0	1576	0	0	1774	0	1300	1774	0	1305
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	1.2	0.0	30.2	2.7	0.0	25.5
Cycle Q Clear(g_c), s	7.9	0.0	0.0	7.5	0.0	0.0	1.2	0.0	30.2	2.7	0.0	25.5
Prop In Lane	0.38		0.13	0.33		0.31	1.00		0.06	1.00		0.06
Lane Grp Cap(c), veh/h	419	0	0	415	0	0	100	0	635	168	0	687
V/C Ratio(X)	0.50	0.00	0.00	0.49	0.00	0.00	0.30	0.00	0.92	0.42	0.00	0.81
Avail Cap(c_a), veh/h	582	0	0	576	0	0	394	0	1083	394	0	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	0.0	24.8	0.0	0.0	32.6	0.0	17.2	30.7	0.0	14.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.6	0.0	4.7	0.6	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	3.6	0.0	0.0	0.6	0.0	11.6	1.4	0.0	9.2
LnGrp Delay(d),s/veh	25.2	0.0	0.0	25.1	0.0	0.0	33.2	0.0	21.9	31.3	0.0	15.3
LnGrp LOS	C			C			C		C	C		B
Approach Vol, veh/h		210			202			616			629	
Approach Delay, s/veh		25.2			25.1			22.4			17.1	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	42.6		20.6	11.5	39.8		20.6
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	3.2	27.5		9.5	4.7	32.2		9.9
Green Ext Time (p_c), s	0.0	2.8		0.5	0.0	2.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	121	85	57	140	96	55	88	29	51	72	26
Future Vol, veh/h	15	121	85	57	140	96	55	88	29	51	72	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	127	89	60	147	101	58	93	31	54	76	27
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.8	12	10.8	10.5
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	7%	19%	34%
Vol Thru, %	51%	55%	48%	48%
Vol Right, %	17%	38%	33%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	221	293	149
LT Vol	55	15	57	51
Through Vol	88	121	140	72
RT Vol	29	85	96	26
Lane Flow Rate	181	233	308	157
Geometry Grp	1	1	1	1
Degree of Util (X)	0.281	0.333	0.436	0.245
Departure Headway (Hd)	5.579	5.147	5.094	5.625
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	698	706	637
Service Time	3.624	3.19	3.134	3.672
HCM Lane V/C Ratio	0.281	0.334	0.436	0.246
HCM Control Delay	10.8	10.8	12	10.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.1	1.5	2.2	1

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	69	47	9	0	81	0	31	0	1	6	1	45
Future Vol, veh/h	69	47	9	0	81	0	31	0	1	6	1	45
Conflicting Peds, #/hr	4	0	8	8	0	4	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	85	58	11	0	100	0	38	0	1	7	1	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	104	0	0	77	0	0	375	346	78	344	351	108
Stage 1	-	-	-	-	-	-	242	242	-	104	104	-
Stage 2	-	-	-	-	-	-	133	104	-	240	247	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1488	-	-	1522	-	-	582	577	983	610	573	946
Stage 1	-	-	-	-	-	-	762	705	-	902	809	-
Stage 2	-	-	-	-	-	-	870	809	-	763	702	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1482	-	-	1510	-	-	516	536	970	576	532	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	516	536	-	576	532	-
Stage 1	-	-	-	-	-	-	711	657	-	844	806	-
Stage 2	-	-	-	-	-	-	814	806	-	712	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.2	0	12.4	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	524	1482	-	-	1510	-	-	864
HCM Lane V/C Ratio	0.075	0.057	-	-	-	-	-	0.074
HCM Control Delay (s)	12.4	7.6	0	-	0	-	-	9.5
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	23	574	66	27	571
Future Vol, veh/h	31	23	574	66	27	571
Conflicting Peds, #/hr	12	12	0	1	54	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	24	604	69	28	601

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1362	705	0	0	727	0
Stage 1	693	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	163	436	-	-	876	-
Stage 1	496	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	148	409	-	-	831	-
Mov Cap-2 Maneuver	280	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	323	831	-
HCM Lane V/C Ratio	-	-	0.176	0.034	-
HCM Control Delay (s)	-	-	18.5	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

HCM 2010 TWSC
16: Railroad Ave & Hunt Ave

Scenario: Existing Conditions
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	67	3	2	29	135	3	10	6	185	6	16
Future Vol, veh/h	21	67	3	2	29	135	3	10	6	185	6	16
Conflicting Peds, #/hr	31	0	1	1	0	31	7	0	5	5	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	76	3	2	33	153	3	11	7	210	7	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	217	0	0	80	0	0	260	348	84	285	273	148
Stage 1	-	-	-	-	-	-	127	127	-	145	145	-
Stage 2	-	-	-	-	-	-	133	221	-	140	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1353	-	-	1518	-	-	693	576	975	667	634	899
Stage 1	-	-	-	-	-	-	877	791	-	858	777	-
Stage 2	-	-	-	-	-	-	870	720	-	863	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1313	-	-	1517	-	-	658	547	969	620	602	867
Mov Cap-2 Maneuver	-	-	-	-	-	-	658	547	-	620	602	-
Stage 1	-	-	-	-	-	-	859	775	-	817	753	-
Stage 2	-	-	-	-	-	-	838	698	-	824	774	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.1	10.7	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	654	1313	-	-	1517	-	-	633
HCM Lane V/C Ratio	0.033	0.018	-	-	0.001	-	-	0.372
HCM Control Delay (s)	10.7	7.8	0	-	7.4	0	-	14
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.7

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	19	35	62	137	17
Future Vol, veh/h	19	19	35	62	137	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	23	23	42	75	165	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	117	0	-	0	111	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1465	-	-	-	883	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1465	-	-	-	869	1026
Mov Cap-2 Maneuver	-	-	-	-	869	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1465	-	-	-	884
HCM Lane V/C Ratio	0.016	-	-	-	0.21
HCM Control Delay (s)	7.5	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: Existing Conditions
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	191	139	26	91	83	549	51	85	513	4
Future Volume (veh/h)	0	0	191	139	26	91	83	549	51	85	513	4
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.93	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	0	0	203	148	28	97	88	584	54	90	546	4
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	126	200	192	36	188	115	717	22	115	737	5
Arrive On Green	0.00	0.00	0.08	0.13	0.13	0.13	0.07	0.51	0.51	0.07	0.51	0.51
Sat Flow, veh/h	0	1863	1460	1503	284	1478	1774	1188	110	1774	1312	10
Grp Volume(v), veh/h	0	0	203	176	0	97	88	0	638	90	0	550
Grp Sat Flow(s),veh/h/ln	0	1863	1460	1788	0	1478	1774	0	1298	1774	0	1321
Q Serve(g_s), s	0.0	0.0	9.0	11.1	0.0	7.1	5.7	0.0	55.0	5.8	0.0	40.5
Cycle Q Clear(g_c), s	0.0	0.0	9.0	11.1	0.0	7.1	5.7	0.0	55.0	5.8	0.0	40.5
Prop In Lane	0.00		1.00	0.84		1.00	1.00		0.08	1.00		0.01
Lane Grp Cap(c), veh/h	0	126	200	228	0	188	115	0	738	115	0	742
V/C Ratio(X)	0.00	0.00	1.02	0.77	0.00	0.51	0.77	0.00	0.86	0.78	0.00	0.74
Avail Cap(c_a), veh/h	0	144	227	536	0	443	380	0	833	380	0	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	58.2	56.3	0.0	54.4	61.4	0.0	29.3	61.5	0.0	22.0
Incr Delay (d2), s/veh	0.0	0.0	61.2	2.1	0.0	0.8	3.9	0.0	7.8	4.3	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	182.7	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	10.8	6.4	0.0	3.4	3.3	0.0	66.1	3.4	0.0	15.6
LnGrp Delay(d),s/veh	0.0	0.0	119.4	58.4	0.0	55.2	65.4	0.0	219.8	65.8	0.0	24.4
LnGrp LOS			F	E		E	E		F	E		C
Approach Vol, veh/h		203			273			726			640	
Approach Delay, s/veh		119.4			57.3			201.1			30.2	
Approach LOS		F			E			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	67.7		23.2	12.2	67.7		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	7.7	42.5		13.1	7.8	57.0		11.0
Green Ext Time (p_c), s	0.1	2.7		0.9	0.1	3.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	111.4
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: Existing Conditions
Time Period: PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	43	50	698	720	56
Future Volume (veh/h)	55	43	50	698	720	56
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	56	43	51	705	727	57
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	110	84	130	1006	766	60
Arrive On Green	0.12	0.12	0.07	0.77	0.64	0.64
Sat Flow, veh/h	936	719	1757	1311	1200	94
Grp Volume(v), veh/h	100	0	51	705	0	784
Grp Sat Flow(s),veh/h/ln	1671	0	1757	1311	0	1294
Q Serve(g_s), s	4.8	0.0	2.4	23.0	0.0	47.3
Cycle Q Clear(g_c), s	4.8	0.0	2.4	23.0	0.0	47.3
Prop In Lane	0.56	0.43	1.00			0.07
Lane Grp Cap(c), veh/h	196	0	130	1006	0	826
V/C Ratio(X)	0.51	0.00	0.39	0.70	0.00	0.95
Avail Cap(c_a), veh/h	786	0	826	1006	0	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.3	0.0	37.6	5.0	0.0	14.1
Incr Delay (d2), s/veh	0.8	0.0	0.7	2.2	0.0	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.2	8.6	0.0	20.2
LnGrp Delay(d),s/veh	36.0	0.0	38.3	7.2	0.0	30.2
LnGrp LOS	D		D	A		C
Approach Vol, veh/h	100			756	784	
Approach Delay, s/veh	36.0			9.3	30.2	
Approach LOS	D			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	59.4				70.4		14.7
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	6.3	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	14.4	49.3				25.0		6.8
Green Ext Time (p_c), s	0.0	5.0				5.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	88	104	642	771	27
Future Vol, veh/h	11	88	104	642	771	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	96	113	698	838	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1777	853	867	0	-	0
Stage 1	853	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	90	357	772	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	77	357	772	-	-	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	355	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.6	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	772	-	175	357	-	-
HCM Lane V/C Ratio	0.146	-	0.068	0.268	-	-
HCM Control Delay (s)	10.5	-	27.1	18.7	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0.5	-	0.2	1.1	-	-

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	75	6	12	63	7
Future Vol, veh/h	15	75	6	12	63	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	85	7	14	72	8
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.4	7.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	90%	0%	33%
Vol Thru, %	0%	17%	67%
Vol Right, %	10%	83%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	70	90	18
LT Vol	63	0	6
Through Vol	0	15	12
RT Vol	7	75	0
Lane Flow Rate	80	102	20
Geometry Grp	1	1	1
Degree of Util (X)	0.094	0.102	0.024
Departure Headway (Hd)	4.266	3.589	4.219
Convergence, Y/N	Yes	Yes	Yes
Cap	838	991	842
Service Time	2.299	1.639	2.275
HCM Lane V/C Ratio	0.095	0.103	0.024
HCM Control Delay	7.7	7.1	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	0.3	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	226	261	57	68	15
Future Vol, veh/h	18	226	261	57	68	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	246	284	62	74	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	346	0	-	0	601	315
Stage 1	-	-	-	-	315	-
Stage 2	-	-	-	-	286	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1213	-	-	-	463	725
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1213	-	-	-	454	725
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	763	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1213	-	-	-	487
HCM Lane V/C Ratio	0.016	-	-	-	0.185
HCM Control Delay (s)	8	0	-	-	14.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	242	39	19	226	6	33	0	24	4	0	20
Future Vol, veh/h	31	242	39	19	226	6	33	0	24	4	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	249	40	20	233	6	34	0	25	4	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	289	0	0	620	612	269	622	629	236
Stage 1	-	-	-	-	-	-	333	333	-	276	276	-
Stage 2	-	-	-	-	-	-	287	279	-	346	353	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1328	-	-	1273	-	-	400	408	770	399	399	803
Stage 1	-	-	-	-	-	-	681	644	-	730	682	-
Stage 2	-	-	-	-	-	-	720	680	-	670	631	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1273	-	-	378	392	770	375	383	803
Mov Cap-2 Maneuver	-	-	-	-	-	-	378	392	-	375	383	-
Stage 1	-	-	-	-	-	-	665	629	-	712	671	-
Stage 2	-	-	-	-	-	-	690	669	-	633	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.6	13.1	10.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	378	770	1328	-	-	1273	-	-	675
HCM Lane V/C Ratio	0.09	0.032	0.024	-	-	0.015	-	-	0.037
HCM Control Delay (s)	15.5	9.8	7.8	-	-	7.9	-	-	10.5
HCM Lane LOS	C	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	481	707	0
Future Vol, veh/h	0	0	0	481	707	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	517	760	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1277	760	760	0	-	0
Stage 1	760	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	183	404	847	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	183	404	847	-	-	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	596	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	847	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	10	471	16	5	702
Future Vol, veh/h	48	10	471	16	5	702
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	11	506	17	5	755

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1271	506	0	0	523	0
Stage 1	506	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	185	566	-	-	1043	-
Stage 1	606	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	566	-	-	1043	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	344	1043	-
HCM Lane V/C Ratio	-	-	0.181	0.005	-
HCM Control Delay (s)	-	-	17.8	8.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	92	164	103	395	573	177
Future Vol, veh/h	92	164	103	395	573	177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	178	112	429	623	192

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1276	623	815	0	-	0
Stage 1	623	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	184	486	812	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	159	486	812	-	-	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	461	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.1	2.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	812	-	377	-	-
HCM Lane V/C Ratio	0.138	-	0.738	-	-
HCM Control Delay (s)	10.1	-	37.1	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.5	-	5.8	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	17	2	751	0	3	774	15
Future Vol, veh/h	0	0	0	0	0	17	2	751	0	3	774	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	17	2	766	0	3	790	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1583	1574	798	1574	1581	766	805	0	0	766	0	0
Stage 1	804	804	-	770	770	-	-	-	-	-	-	-
Stage 2	779	770	-	804	811	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	87	109	384	89	108	401	815	-	-	843	-	-
Stage 1	375	394	-	392	409	-	-	-	-	-	-	-
Stage 2	387	409	-	375	391	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	83	108	384	88	107	401	815	-	-	843	-	-
Mov Cap-2 Maneuver	83	108	-	88	107	-	-	-	-	-	-	-
Stage 1	374	392	-	390	407	-	-	-	-	-	-	-
Stage 2	369	407	-	374	389	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.4	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	815	-	-	-	401	843	-	-
HCM Lane V/C Ratio	0.003	-	-	-	0.043	0.004	-	-
HCM Control Delay (s)	9.4	-	-	0	14.4	9.3	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

HCM 2010 TWSC
8: Main St & Pratt Ave

Scenario: Existing Conditions
Time Period: Saturday Peak Ho

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	8	9	1	21	7	663	15	15	692	5
Future Vol, veh/h	3	0	8	9	1	21	7	663	15	15	692	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	97	92	97	92	97	97	97	97	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	0	9	9	1	22	8	684	15	15	713	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1465	1461	716	1458	1456	692	718	0	0	699	0	0
Stage 1	746	746	-	708	708	-	-	-	-	-	-	-
Stage 2	719	715	-	750	748	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	106	128	428	107	129	442	878	-	-	893	-	-
Stage 1	404	419	-	424	436	-	-	-	-	-	-	-
Stage 2	418	433	-	402	418	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	98	125	428	103	126	442	878	-	-	893	-	-
Mov Cap-2 Maneuver	98	125	-	103	126	-	-	-	-	-	-	-
Stage 1	400	412	-	420	432	-	-	-	-	-	-	-
Stage 2	393	429	-	387	411	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.1	24.4	0.1	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	878	-	-	223	217	893	-	-
HCM Lane V/C Ratio	0.009	-	-	0.054	0.148	0.017	-	-
HCM Control Delay (s)	9.1	-	-	22.1	24.4	9.1	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	17	26	664	671	38
Future Vol, veh/h	21	17	26	664	671	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	22	18	27	692	699	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1465	719	739	0	-	0
Stage 1	719	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	140	427	863	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	427	863	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.6	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	863	-	192	-	-
HCM Lane V/C Ratio	0.031	-	0.206	-	-
HCM Control Delay (s)	9.3	0	28.6	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: Existing Conditions
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	25	37	11	15	73	16	546	6	53	561	74
Future Volume (veh/h)	71	25	37	11	15	73	16	546	6	53	561	74
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	25	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	73	26	38	11	15	75	16	563	6	55	578	76
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	204	72	68	85	52	186	251	857	9	464	776	77
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.62	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	639	467	425	78	324	1159	768	1294	14	830	1133	149
Grp Volume(v), veh/h	137	0	0	101	0	0	16	0	569	55	0	654
Grp Sat Flow(s),veh/h/ln	1531	0	0	1561	0	0	768	0	1308	830	0	1282
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	14.1	2.3	0.0	19.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	2.7	0.0	0.0	19.8	0.0	14.1	16.4	0.0	19.0
Prop In Lane	0.53		0.28	0.11		0.74	1.00		0.01	1.00		0.12
Lane Grp Cap(c), veh/h	344	0	0	323	0	0	251	0	867	464	0	853
V/C Ratio(X)	0.40	0.00	0.00	0.31	0.00	0.00	0.06	0.00	0.66	0.12	0.00	0.77
Avail Cap(c_a), veh/h	995	0	0	1015	0	0	1000	0	1966	1154	0	1927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	0.0	23.4	0.0	0.0	23.9	0.0	5.6	10.7	0.0	8.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.4	0.0	0.0	0.2	0.0	1.2	0.2	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	1.6	0.0	0.0	0.2	0.0	5.4	0.6	0.0	18.6
LnGrp Delay(d),s/veh	24.4	0.0	0.0	23.8	0.0	0.0	24.0	0.0	6.8	10.8	0.0	36.6
LnGrp LOS	C			C			C		A	B		D
Approach Vol, veh/h		137			101			585			709	
Approach Delay, s/veh		24.4			23.8			7.3			34.6	
Approach LOS		C			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.3		13.6		34.3		13.6
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		21.8		5.5		21.0		4.7
Green Ext Time (p_c), s		7.2		0.7		8.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: Existing Conditions
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	54	28	42	35	44	27	487	24	41	548	20
Future Volume (veh/h)	37	54	28	42	35	44	27	487	24	41	548	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	20	0
Ped-Bike Adj(A_pbT)	0.75		0.66	0.75		0.68	1.00		0.91	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	38	56	29	43	36	45	28	502	25	42	565	21
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	133	174	77	141	110	110	90	637	32	117	676	17
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.05	0.47	0.47	0.07	0.49	0.49
Sat Flow, veh/h	312	712	316	339	451	450	1757	1231	61	1757	1251	46
Grp Volume(v), veh/h	123	0	0	124	0	0	28	0	527	42	0	586
Grp Sat Flow(s),veh/h/ln	1340	0	0	1240	0	0	1757	0	1293	1757	0	1297
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	1.2	0.0	27.6	1.7	0.0	32.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	5.1	0.0	0.0	1.2	0.0	27.6	1.7	0.0	32.0
Prop In Lane	0.31		0.24	0.35		0.36	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	385	0	0	361	0	0	90	0	669	117	0	693
V/C Ratio(X)	0.32	0.00	0.00	0.34	0.00	0.00	0.31	0.00	0.79	0.36	0.00	0.85
Avail Cap(c_a), veh/h	484	0	0	454	0	0	371	0	1025	371	0	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	0.0	26.8	0.0	0.0	39.1	0.0	16.5	38.2	0.0	18.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.7	0.0	1.1	0.7	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.7
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	2.4	0.0	0.0	0.7	0.0	10.1	1.0	0.0	23.4
LnGrp Delay(d),s/veh	26.8	0.0	0.0	27.0	0.0	0.0	39.8	0.0	17.5	38.8	0.0	60.4
LnGrp LOS	C			C			D		B	D		E
Approach Vol, veh/h		123			124			555			628	
Approach Delay, s/veh		26.8			27.0			18.7			59.0	
Approach LOS		C			C			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.7	41.6		25.4	10.0	40.3		25.4
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	13.2	34.0		7.1	3.7	29.6		6.7
Green Ext Time (p_c), s	0.0	2.9		0.3	0.0	2.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	37.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	28	510	67	22	596
Future Vol, veh/h	32	28	510	67	22	596
Conflicting Peds, #/hr	39	71	0	169	169	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	29	531	70	23	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1441	806	0	0	770	0
Stage 1	735	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	145	380	-	-	840	-
Stage 1	473	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	113	297	-	-	705	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	470	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.8	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	264	705	-
HCM Lane V/C Ratio	-	-	0.237	0.033	-
HCM Control Delay (s)	-	-	22.8	10.3	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	↰	
Traffic Vol, veh/h	14	24	26	48	116	8
Future Vol, veh/h	14	24	26	48	116	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	28	30	55	133	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	85	0	-	0	90	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1505	-	-	-	908	1042
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	960	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1505	-	-	-	898	1042
Mov Cap-2 Maneuver	-	-	-	-	898	-
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	960	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	906
HCM Lane V/C Ratio	0.011	-	-	-	0.157
HCM Control Delay (s)	7.4	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: Existing Conditions
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	153	128	38	71	57	506	55	63	559	6
Future Volume (veh/h)	0	0	153	128	38	71	57	506	55	63	559	6
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		0.49	1.00		0.74	1.00		0.90	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	156	131	39	72	58	516	56	64	570	6
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	123	139	218	65	176	104	673	21	106	703	4
Arrive On Green	0.00	0.00	0.08	0.18	0.18	0.18	0.07	0.47	0.47	0.07	0.47	0.47
Sat Flow, veh/h	0	1845	763	1369	407	1153	1757	1149	125	1757	1293	14
Grp Volume(v), veh/h	0	0	156	170	0	72	58	0	572	64	0	576
Grp Sat Flow(s),veh/h/ln	0	1845	763	1776	0	1153	1757	0	1273	1757	0	1307
Q Serve(g_s), s	0.0	0.0	9.0	10.1	0.0	6.4	3.7	0.0	50.1	4.1	0.0	48.2
Cycle Q Clear(g_c), s	0.0	0.0	9.0	10.1	0.0	6.4	3.7	0.0	50.1	4.1	0.0	48.2
Prop In Lane	0.00		1.00	0.77		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	0	123	139	283	0	176	104	0	708	106	0	688
V/C Ratio(X)	0.00	0.00	1.12	0.60	0.00	0.41	0.56	0.00	0.81	0.60	0.00	0.84
Avail Cap(c_a), veh/h	0	143	162	535	0	347	378	0	821	378	0	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	61.9	53.1	0.0	51.3	62.1	0.0	31.3	62.2	0.0	30.5
Incr Delay (d2), s/veh	0.0	0.0	110.3	2.0	0.0	1.5	1.8	0.0	4.5	2.0	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	168.0	0.0	0.0	58.3
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.5	6.1	0.0	2.5	2.2	0.0	60.6	2.4	0.0	36.4
LnGrp Delay(d),s/veh	0.0	0.0	172.2	55.1	0.0	52.8	63.9	0.0	203.8	64.2	0.0	94.1
LnGrp LOS			F	E		D	E		F	E		F
Approach Vol, veh/h		156			242			630			640	
Approach Delay, s/veh		172.2			54.4			190.9			91.1	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	62.8		28.5	11.6	62.6		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	5.7	50.2		12.1	6.1	52.1		11.0
Green Ext Time (p_c), s	0.1	2.8		1.3	0.1	2.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	131.1
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: Existing Conditions
Time Period: Saturday Peak Ho

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	32	34	634	791	28
Future Volume (veh/h)	25	32	34	634	791	28
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	30	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	25	32	34	640	799	28
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	70	89	104	1027	840	29
Arrive On Green	0.10	0.10	0.06	0.78	0.67	0.67
Sat Flow, veh/h	711	910	1757	1311	1259	44
Grp Volume(v), veh/h	58	0	34	640	0	827
Grp Sat Flow(s),veh/h/ln	1649	0	1757	1311	0	1303
Q Serve(g_s), s	2.7	0.0	1.5	17.1	0.0	47.7
Cycle Q Clear(g_c), s	2.7	0.0	1.5	17.1	0.0	47.7
Prop In Lane	0.43	0.55	1.00			0.03
Lane Grp Cap(c), veh/h	162	0	104	1027	0	870
V/C Ratio(X)	0.36	0.00	0.33	0.62	0.00	0.95
Avail Cap(c_a), veh/h	799	0	852	1033	0	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	37.3	5.4	0.0	12.5
Incr Delay (d2), s/veh	0.5	0.0	0.7	1.2	0.0	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	16.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.8	16.1	0.0	20.7
LnGrp Delay(d),s/veh	35.3	0.0	38.0	22.9	0.0	28.6
LnGrp LOS	D		D	C		C
Approach Vol, veh/h	58			674	827	
Approach Delay, s/veh	35.3			23.6	28.6	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.6	60.1				69.7		12.8
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	4.9	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	3.5	49.7				19.1		4.7
Green Ext Time (p_c), s	0.0	5.3				4.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	55	68	637	803	12
Future Vol, veh/h	7	55	68	637	803	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	7	57	70	657	828	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1631	834	840	0	-	0
Stage 1	834	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	111	367	791	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	101	367	791	-	-	-
Mov Cap-2 Maneuver	219	-	-	-	-	-
Stage 1	388	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	791	-	219	367	-	-
HCM Lane V/C Ratio	0.089	-	0.033	0.154	-	-
HCM Control Delay (s)	10	-	22	16.6	-	-
HCM Lane LOS	A	-	C	C	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.5	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	15	558	23	8	520
Future Vol, veh/h	28	15	558	23	8	520
Conflicting Peds, #/hr	0	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	16	581	24	8	542

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1140	583	0	0	606	0
Stage 1	582	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	221	510	-	-	967	-
Stage 1	557	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	219	509	-	-	966	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	396	966	-
HCM Lane V/C Ratio	-	-	0.113	0.009	-
HCM Control Delay (s)	-	-	15.2	8.8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	110	114	121	471	423	125
Future Vol, veh/h	110	114	121	471	423	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	116	120	127	496	445	132

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1195	445	577	0	-	0
Stage 1	445	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	205	611	992	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	611	992	-	-	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.8	1.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	992	-	373	-	-
HCM Lane V/C Ratio	0.128	-	0.632	-	-
HCM Control Delay (s)	9.2	-	29.8	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.4	-	4.2	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	4	0	0	4	2	657	0	7	815	22
Future Vol, veh/h	1	0	4	0	0	4	2	657	0	7	815	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	0	4	0	0	4	2	670	0	7	832	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1533	1531	843	1533	1542	670	854	0	0	670	0	0
Stage 1	857	857	-	674	674	-	-	-	-	-	-	-
Stage 2	676	674	-	859	868	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	95	116	362	95	114	455	781	-	-	916	-	-
Stage 1	351	373	-	443	452	-	-	-	-	-	-	-
Stage 2	441	452	-	350	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	115	362	93	113	455	781	-	-	916	-	-
Mov Cap-2 Maneuver	93	115	-	93	113	-	-	-	-	-	-	-
Stage 1	350	370	-	441	450	-	-	-	-	-	-	-
Stage 2	435	450	-	343	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	13	0	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	781	-	-	229	455	916	-	-
HCM Lane V/C Ratio	0.003	-	-	0.024	0.009	0.008	-	-
HCM Control Delay (s)	9.6	-	-	21.1	13	9	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

YEAR 2040 GENERAL PLAN BUILDOUT
SYNCHRO LOS OUTPUTS

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	10	110	10	50	0	70	20	20	100	0
Future Vol, veh/h	0	0	10	110	10	50	0	70	20	20	100	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	14	155	14	70	0	99	28	28	141	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	352	324	141	317	310	113	141	0	0	127	0	0
Stage 1	197	197	-	113	113	-	-	-	-	-	-	-
Stage 2	155	127	-	204	197	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	601	592	904	634	603	937	1436	-	-	1453	-	-
Stage 1	803	736	-	890	800	-	-	-	-	-	-	-
Stage 2	845	789	-	796	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	580	904	614	590	937	1436	-	-	1453	-	-
Mov Cap-2 Maneuver	537	580	-	614	590	-	-	-	-	-	-	-
Stage 1	803	721	-	890	800	-	-	-	-	-	-	-
Stage 2	768	789	-	767	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	13.1	0	1.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1436	-	-	904	681	1453	-	-
HCM Lane V/C Ratio	-	-	-	0.016	0.352	0.019	-	-
HCM Control Delay (s)	0	-	-	9	13.1	7.5	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.6	0.1	-	-

HCM 2010 TWSC
2: Hillview Pl & Spring Mountain Rd

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	170	20	0	70	20	10	10	10	20	10	10
Future Vol, veh/h	30	170	20	0	70	20	10	10	10	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	236	28	0	97	28	14	14	14	28	14	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	125	0	0	264	0	0	459	459	250	459	459	111
Stage 1	-	-	-	-	-	-	334	334	-	111	111	-
Stage 2	-	-	-	-	-	-	125	125	-	348	348	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1455	-	-	1294	-	-	511	497	786	511	497	940
Stage 1	-	-	-	-	-	-	678	641	-	892	802	-
Stage 2	-	-	-	-	-	-	877	791	-	666	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1455	-	-	1294	-	-	480	480	786	478	480	940
Mov Cap-2 Maneuver	-	-	-	-	-	-	480	480	-	478	480	-
Stage 1	-	-	-	-	-	-	655	619	-	862	802	-
Stage 2	-	-	-	-	-	-	849	791	-	618	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	12.1	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1455	-	-	1294	-	-	546
HCM Lane V/C Ratio	0.075	0.029	-	-	-	-	-	0.102
HCM Control Delay (s)	12.1	7.5	0	-	0	-	-	12.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

HCM 2010 TWSC
3: Madrona Ave & Spring Mountain Rd

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	140	100	40	80	120
Future Vol, veh/h	50	140	100	40	80	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	72	203	145	58	116	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	203	0	-	0	521	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1363	-	-	-	514	867
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1363	-	-	-	483	867
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1363	-	-	-	658
HCM Lane V/C Ratio	0.053	-	-	-	0.441
HCM Control Delay (s)	7.8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

HCM 2010 TWSC
4: Hudson Ave & Madrona Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	10	100	40	10	50
Future Vol, veh/h	30	10	100	40	10	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	15	152	61	15	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	418	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1537	-	590	1012
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	530	1012
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	700	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	879	-	-	1537	-
HCM Lane V/C Ratio	0.103	-	-	0.099	-
HCM Control Delay (s)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.3	-

HCM 2010 TWSC
5: Valley View St & Spring St

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	10.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	50	250	30	40	230
Future Vol, veh/h	40	50	250	30	40	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	56	70	352	42	56	324

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	837	91
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	746	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1454	-	335	964
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	467	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1454	-	252	964
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	680	-	-	1454	-
HCM Lane V/C Ratio	0.559	-	-	0.242	-
HCM Control Delay (s)	16.8	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.5	-	-	1	-

HCM 2010 AWSC
6: Crane Ave/Valley View St & Grayson Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	180	110	60	210	130
Future Vol, veh/h	30	180	110	60	210	130
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	43	261	159	87	304	188
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.8	11.4	21.2
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	14%	62%
Vol Thru, %	65%	0%	38%
Vol Right, %	35%	86%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	210	340
LT Vol	0	30	210
Through Vol	110	0	130
RT Vol	60	180	0
Lane Flow Rate	246	304	493
Geometry Grp	1	1	1
Degree of Util (X)	0.365	0.453	0.727
Departure Headway (Hd)	5.332	5.363	5.31
Convergence, Y/N	Yes	Yes	Yes
Cap	673	670	680
Service Time	3.376	3.409	3.345
HCM Lane V/C Ratio	0.366	0.454	0.725
HCM Control Delay	11.4	12.8	21.2
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.7	2.4	6.3

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	20	140	130	10
Future Vol, veh/h	10	10	20	140	130	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	14	27	189	176	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	216	0	-	0	164	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1348	-	-	-	824	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1348	-	-	-	816	926
Mov Cap-2 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1348	-	-	-	823
HCM Lane V/C Ratio	0.01	-	-	-	0.23
HCM Control Delay (s)	7.7	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9

HCM 2010 TWSC
8: Main St & Pratt Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	10	30	0	30	10	720	40	30	900	10
Future Vol, veh/h	10	0	10	30	0	30	10	720	40	30	900	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	0	11	32	0	32	11	766	43	32	957	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1853	1858	963	1842	1842	788	968	0	0	809	0	0
Stage 1	1027	1027	-	810	810	-	-	-	-	-	-	-
Stage 2	826	831	-	1032	1032	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	56	73	309	57	75	390	708	-	-	812	-	-
Stage 1	282	310	-	372	392	-	-	-	-	-	-	-
Stage 2	365	383	-	280	309	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	69	309	53	71	390	708	-	-	812	-	-
Mov Cap-2 Maneuver	49	69	-	53	71	-	-	-	-	-	-	-
Stage 1	277	298	-	366	386	-	-	-	-	-	-	-
Stage 2	330	377	-	260	297	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	60.9	103.3	0.1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	708	-	-	85	93	812	-	-
HCM Lane V/C Ratio	0.015	-	-	0.25	0.686	0.039	-	-
HCM Control Delay (s)	10.2	-	-	60.9	103.3	9.6	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	3.4	0.1	-	-

HCM 2010 TWSC
9: Main St & Elmhurst Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	30	50	740	810	130
Future Vol, veh/h	30	30	50	740	810	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	32	54	796	871	140

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1845	941	1011	0	-	0
Stage 1	941	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	82	318	682	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	70	318	682	-	-	-
Mov Cap-2 Maneuver	70	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	70.4	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	682	-	115	-	-
HCM Lane V/C Ratio	0.079	-	0.561	-	-
HCM Control Delay (s)	10.7	0	70.4	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.3	-	2.7	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	50	50	20	60	80	40	610	20	120	610	110
Future Volume (veh/h)	100	50	50	20	60	80	40	610	20	120	610	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	112	56	56	22	67	90	45	685	22	135	685	124
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	181	82	68	68	142	167	184	874	28	318	747	135
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	612	412	341	116	715	840	665	1263	41	731	1080	195
Grp Volume(v), veh/h	224	0	0	179	0	0	45	0	707	135	0	809
Grp Sat Flow(s),veh/h/ln	1364	0	0	1671	0	0	665	0	1303	731	0	1275
Q Serve(g_s), s	5.6	0.0	0.0	0.0	0.0	0.0	5.6	0.0	33.2	13.8	0.0	48.5
Cycle Q Clear(g_c), s	14.4	0.0	0.0	8.8	0.0	0.0	54.1	0.0	33.2	47.0	0.0	48.5
Prop In Lane	0.50		0.25	0.12		0.50	1.00		0.03	1.00		0.15
Lane Grp Cap(c), veh/h	331	0	0	377	0	0	184	0	902	318	0	883
V/C Ratio(X)	0.68	0.00	0.00	0.47	0.00	0.00	0.24	0.00	0.78	0.42	0.00	0.92
Avail Cap(c_a), veh/h	498	0	0	566	0	0	251	0	1033	392	0	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	0.0	32.7	0.0	0.0	34.5	0.0	9.4	25.2	0.0	11.8
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.7	0.0	0.0	1.0	0.0	3.9	1.3	0.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	4.1	0.0	0.0	1.1	0.0	12.8	2.9	0.0	19.6
LnGrp Delay(d),s/veh	36.6	0.0	0.0	33.4	0.0	0.0	35.5	0.0	13.3	26.5	0.0	24.0
LnGrp LOS	D			C			D		B	C		C
Approach Vol, veh/h		224			179			752			944	
Approach Delay, s/veh		36.6			33.4			14.7			24.4	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		67.5		23.3		67.5		23.3
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		56.1		16.4		50.5		10.8
Green Ext Time (p_c), s		6.8		0.9		9.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC
11: Railroad Ave & Fulton Ln

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	150	10	20	120	20
Future Vol, veh/h	30	150	10	20	120	20
Conflicting Peds, #/hr	0	2	2	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	181	12	24	145	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	219	0	178	130
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1344	-	809	917
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	971	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1341	-	799	914
Mov Cap-2 Maneuver	-	-	-	-	799	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	814	-	-	1341	-
HCM Lane V/C Ratio	0.207	-	-	0.009	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	90	40	30	70	40	50	570	50	70	540	70
Future Volume (veh/h)	60	90	40	30	70	40	50	570	50	70	540	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.91	0.96		0.93	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	65	98	43	33	76	43	54	620	54	76	587	76
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	132	168	64	96	185	90	135	655	57	156	640	83
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.55	0.55	0.09	0.56	0.56
Sat Flow, veh/h	395	876	335	228	967	471	1757	1188	103	1757	1136	147
Grp Volume(v), veh/h	206	0	0	152	0	0	54	0	674	76	0	663
Grp Sat Flow(s),veh/h/ln	1606	0	0	1666	0	0	1757	0	1291	1757	0	1283
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	2.5	0.0	41.1	3.5	0.0	39.2
Cycle Q Clear(g_c), s	9.5	0.0	0.0	6.5	0.0	0.0	2.5	0.0	41.1	3.5	0.0	39.2
Prop In Lane	0.32		0.21	0.22		0.28	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	364	0	0	372	0	0	135	0	712	156	0	723
V/C Ratio(X)	0.57	0.00	0.00	0.41	0.00	0.00	0.40	0.00	0.95	0.49	0.00	0.92
Avail Cap(c_a), veh/h	506	0	0	517	0	0	335	0	924	335	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	0.0	30.1	0.0	0.0	36.9	0.0	17.7	36.4	0.0	16.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.3	0.0	0.0	0.7	0.0	14.2	0.9	0.0	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	3.2	0.0	0.0	1.2	0.0	17.2	1.7	0.0	15.7
LnGrp Delay(d),s/veh	31.6	0.0	0.0	30.3	0.0	0.0	37.6	0.0	31.9	37.2	0.0	27.1
LnGrp LOS	C			C			D		C	D		C
Approach Vol, veh/h		206			152			728			739	
Approach Delay, s/veh		31.6			30.3			32.3			28.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	52.0		20.8	12.2	50.9		20.8
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	4.5	41.2		8.5	5.5	43.1		11.5
Green Ext Time (p_c), s	0.0	3.2		0.3	0.0	3.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	100	80	20	50	40	80	110	60	60	70	20
Future Vol, veh/h	30	100	80	20	50	40	80	110	60	60	70	20
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	35	116	93	23	58	47	93	128	70	70	81	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	9.7	11.8	10.4
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	14%	18%	40%
Vol Thru, %	44%	48%	45%	47%
Vol Right, %	24%	38%	36%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	210	110	150
LT Vol	80	30	20	60
Through Vol	110	100	50	70
RT Vol	60	80	40	20
Lane Flow Rate	291	244	128	174
Geometry Grp	1	1	1	1
Degree of Util (X)	0.416	0.353	0.192	0.262
Departure Headway (Hd)	5.157	5.205	5.416	5.408
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	691	661	663
Service Time	3.19	3.239	3.456	3.446
HCM Lane V/C Ratio	0.417	0.353	0.194	0.262
HCM Control Delay	11.8	11.1	9.7	10.4
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.1	1.6	0.7	1

HCM 2010 TWSC
14: Library Ln & Adams St

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	90	30	0	30	10	10	0	0	0	0	10
Future Vol, veh/h	40	90	30	0	30	10	10	0	0	0	0	10
Conflicting Peds, #/hr	5	0	3	3	0	5	1	0	2	2	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	53	118	39	0	39	13	13	0	0	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	160	0	0	300	304	143	297	317	52
Stage 1	-	-	-	-	-	-	247	247	-	51	51	-
Stage 2	-	-	-	-	-	-	53	57	-	246	266	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1541	-	-	1413	-	-	650	608	902	653	597	1013
Stage 1	-	-	-	-	-	-	755	700	-	959	850	-
Stage 2	-	-	-	-	-	-	957	845	-	756	687	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1534	-	-	1409	-	-	621	580	898	630	570	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	621	580	-	630	570	-
Stage 1	-	-	-	-	-	-	724	671	-	918	846	-
Stage 2	-	-	-	-	-	-	944	841	-	726	659	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	10.9	8.6
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	621	1534	-	-	1409	-	-	1007
HCM Lane V/C Ratio	0.021	0.034	-	-	-	-	-	0.013
HCM Control Delay (s)	10.9	7.4	0	-	0	-	-	8.6
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	20	650	110	20	590
Future Vol, veh/h	40	20	650	110	20	590
Conflicting Peds, #/hr	0	2	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	21	677	115	21	615

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1397	742	0	0	797	0
Stage 1	740	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	155	414	-	-	821	-
Stage 1	470	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	150	411	-	-	817	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	317	817	-
HCM Lane V/C Ratio	-	-	0.197	0.025	-
HCM Control Delay (s)	-	-	19.1	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

HCM 2010 TWSC
16: Railroad Ave & Hunt Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	60	20	10	40	190	10	10	10	140	10	10
Future Vol, veh/h	50	60	20	10	40	190	10	10	10	140	10	10
Conflicting Peds, #/hr	15	0	15	15	0	15	0	0	4	4	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	60	72	24	12	48	229	12	12	12	169	12	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	111	0	0	418	535	103	422	433	178
Stage 1	-	-	-	-	-	-	219	219	-	202	202	-
Stage 2	-	-	-	-	-	-	199	316	-	220	231	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1264	-	-	1473	-	-	544	450	949	540	514	862
Stage 1	-	-	-	-	-	-	781	720	-	798	732	-
Stage 2	-	-	-	-	-	-	801	653	-	780	711	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1246	-	-	1452	-	-	494	411	932	488	469	850
Mov Cap-2 Maneuver	-	-	-	-	-	-	494	411	-	488	469	-
Stage 1	-	-	-	-	-	-	730	674	-	746	714	-
Stage 2	-	-	-	-	-	-	769	637	-	715	665	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	0.3	12.1	16.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1246	-	-	1452	-	-	500
HCM Lane V/C Ratio	0.067	0.048	-	-	0.008	-	-	0.386
HCM Control Delay (s)	12.1	8	0	-	7.5	0	-	16.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	1.8

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	30	40	60	120	20
Future Vol, veh/h	30	30	40	60	120	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	38	51	77	154	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	128	0	-	0	165	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1452	-	-	-	823	1014
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1452	-	-	-	801	1014
Mov Cap-2 Maneuver	-	-	-	-	801	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	908	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1452	-	-	-	826
HCM Lane V/C Ratio	0.026	-	-	-	0.217
HCM Control Delay (s)	7.5	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	170	200	40	150	80	610	80	100	520	10
Future Volume (veh/h)	0	0	170	200	40	150	80	610	80	100	520	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84	1.00		0.92	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	183	215	43	161	86	656	86	108	559	11
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	117	179	249	50	243	107	652	31	131	692	14
Arrive On Green	0.00	0.00	0.06	0.17	0.17	0.17	0.06	0.53	0.53	0.07	0.54	0.54
Sat Flow, veh/h	0	1845	1320	1476	295	1439	1757	1131	148	1757	1281	25
Grp Volume(v), veh/h	0	0	183	258	0	161	86	0	742	108	0	570
Grp Sat Flow(s),veh/h/ln	0	1845	1320	1771	0	1439	1757	0	1279	1757	0	1306
Q Serve(g_s), s	0.0	0.0	9.0	20.2	0.0	14.9	6.9	0.0	75.0	8.6	0.0	50.7
Cycle Q Clear(g_c), s	0.0	0.0	9.0	20.2	0.0	14.9	6.9	0.0	75.0	8.6	0.0	50.7
Prop In Lane	0.00		1.00	0.83		1.00	1.00		0.12	1.00		0.02
Lane Grp Cap(c), veh/h	0	117	179	299	0	243	107	0	684	131	0	705
V/C Ratio(X)	0.00	0.00	1.02	0.86	0.00	0.66	0.80	0.00	1.09	0.83	0.00	0.81
Avail Cap(c_a), veh/h	0	117	179	435	0	354	308	0	674	308	0	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	62.7	57.6	0.0	55.4	66.0	0.0	33.7	65.0	0.0	26.7
Incr Delay (d2), s/veh	0.0	0.0	72.9	11.6	0.0	3.1	5.1	0.0	59.9	5.0	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	207.1	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	10.7	10.9	0.0	6.1	3.5	0.0	88.2	4.4	0.0	19.5
LnGrp Delay(d),s/veh	0.0	0.0	135.8	69.2	0.0	58.5	71.1	0.0	300.7	70.0	0.0	33.2
LnGrp LOS			F	E		E	E		F	E		C
Approach Vol, veh/h		183			419			828			678	
Approach Delay, s/veh		135.8			65.1			276.9			39.1	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.4	84.6		31.7	14.3	82.7		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	8.9	52.7		22.2	10.6	77.0		11.0
Green Ext Time (p_c), s	0.1	2.7		1.8	0.1	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	146.0
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	70	50	730	810	120
Future Volume (veh/h)	80	70	50	730	810	120
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	84	74	53	768	853	126
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	96	85	101	1072	811	120
Arrive On Green	0.11	0.11	0.06	0.82	0.73	0.73
Sat Flow, veh/h	879	774	1757	1311	1117	165
Grp Volume(v), veh/h	159	0	53	768	0	979
Grp Sat Flow(s),veh/h/ln	1664	0	1757	1311	0	1282
Q Serve(g_s), s	12.7	0.0	4.0	34.8	0.0	98.1
Cycle Q Clear(g_c), s	12.7	0.0	4.0	34.8	0.0	98.1
Prop In Lane	0.53	0.47	1.00			0.13
Lane Grp Cap(c), veh/h	182	0	101	1072	0	930
V/C Ratio(X)	0.87	0.00	0.52	0.72	0.00	1.05
Avail Cap(c_a), veh/h	472	0	118	1085	0	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	61.9	5.4	0.0	18.5
Incr Delay (d2), s/veh	5.1	0.0	1.6	2.3	0.0	44.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	2.0	12.8	0.0	45.5
LnGrp Delay(d),s/veh	64.4	0.0	63.4	7.6	0.0	62.7
LnGrp LOS	E		E	A		F
Approach Vol, veh/h	159			821	979	
Approach Delay, s/veh	64.4			11.2	62.7	
Approach LOS	E			B	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.5	103.2				115.7		19.5
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	7.9	98.1				111.9		38.3
Max Q Clear Time (g_c+I1), s	16.0	100.1				36.8		14.7
Green Ext Time (p_c), s	0.0	0.0				6.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	41.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	120	100	790	750	40
Future Vol, veh/h	20	120	100	790	750	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	125	104	823	781	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1833	802	823	0	-	0
Stage 1	802	-	-	-	-	-
Stage 2	1031	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	83	382	802	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	72	382	802	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	383	-	-	-	-	-
Stage 2	342	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.5	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	802	-	165	382	-	-
HCM Lane V/C Ratio	0.13	-	0.126	0.327	-	-
HCM Control Delay (s)	10.2	-	29.9	18.9	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	1.4	-	-

HCM 2010 AWSC
21: Starr Ave & Hunt Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	80	20	30	110	10
Future Vol, veh/h	20	80	20	30	110	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	94	24	35	129	12
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.4	7.8	8.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	92%	0%	40%
Vol Thru, %	0%	20%	60%
Vol Right, %	8%	80%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	120	100	50
LT Vol	110	0	20
Through Vol	0	20	30
RT Vol	10	80	0
Lane Flow Rate	141	118	59
Geometry Grp	1	1	1
Degree of Util (X)	0.172	0.127	0.073
Departure Headway (Hd)	4.388	3.873	4.482
Convergence, Y/N	Yes	Yes	Yes
Cap	808	931	804
Service Time	2.469	1.875	2.486
HCM Lane V/C Ratio	0.175	0.127	0.073
HCM Control Delay	8.4	7.4	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.4	0.2

HCM 2010 TWSC
22: Pope Street & Starr Ave

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	210	390	90	100	30
Future Vol, veh/h	10	210	390	90	100	30
Conflicting Peds, #/hr	4	0	0	4	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	236	438	101	112	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	543	0	-	0	751	494
Stage 1	-	-	-	-	493	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1021	-	-	-	377	573
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1017	-	-	-	369	570
Mov Cap-2 Maneuver	-	-	-	-	369	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	780	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1017	-	-	-	402
HCM Lane V/C Ratio	0.011	-	-	-	0.363
HCM Control Delay (s)	8.6	0	-	-	19
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.6

HCM 2010 TWSC
23: College Ave/Paseo Grand Dr & Pope Street

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	180	120	90	320	10	120	0	50	10	10	20
Future Vol, veh/h	20	180	120	90	320	10	120	0	50	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	205	136	102	364	11	136	0	57	11	11	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	375	0	0	341	0	0	910	898	273	922	961	370
Stage 1	-	-	-	-	-	-	319	319	-	574	574	-
Stage 2	-	-	-	-	-	-	591	579	-	348	387	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1178	-	-	1213	-	-	254	278	763	250	255	673
Stage 1	-	-	-	-	-	-	690	651	-	502	502	-
Stage 2	-	-	-	-	-	-	492	499	-	666	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1213	-	-	218	250	763	213	229	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	250	-	213	229	-
Stage 1	-	-	-	-	-	-	676	638	-	492	460	-
Stage 2	-	-	-	-	-	-	425	457	-	604	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.8	35.2	17.6
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	763	1178	-	-	1213	-	-	332
HCM Lane V/C Ratio	0.626	0.074	0.019	-	-	0.084	-	-	0.137
HCM Control Delay (s)	45.6	10.1	8.1	-	-	8.2	-	-	17.6
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.7	0.2	0.1	-	-	0.3	-	-	0.5

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	20	30	560	630	30
Future Vol, veh/h	20	20	30	560	630	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	21	31	583	656	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1317	672	687	0	-	0
Stage 1	672	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	173	454	902	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	164	454	902	-	-	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	480	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	902	-	241	-	-
HCM Lane V/C Ratio	0.035	-	0.173	-	-
HCM Control Delay (s)	9.1	0	23	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	580	40	10	640
Future Vol, veh/h	30	10	580	40	10	640
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	10	598	41	10	660

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1278	598	0	0	639	0
Stage 1	598	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	183	500	-	-	940	-
Stage 1	547	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	500	-	-	940	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	349	940	-
HCM Lane V/C Ratio	-	-	0.118	0.011	-
HCM Control Delay (s)	-	-	16.7	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

HCM 2010 TWSC
26: Silverado Trail & Pope Street

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	35.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	100	220	480	450	220
Future Vol, veh/h	140	100	220	480	450	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	146	104	229	500	469	229

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1427	469	698	0	-	0
Stage 1	469	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	148	592	894	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 110	592	894	-	-	-
Mov Cap-2 Maneuver	~ 127	-	-	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	225.6	3.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	894	-	189	-	-
HCM Lane V/C Ratio	0.256	-	1.323	-	-
HCM Control Delay (s)	10.4	-	225.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	1	-	14.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 TWSC
27: Main St & Mills Ln

Scenario: 2040 GP Buildout
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	0	800	10	10	930	10
Future Vol, veh/h	0	0	0	0	0	10	0	800	10	10	930	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	10	0	816	10	10	949	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1800	1800	954	1795	1800	821	-	0	0	826	0	0
Stage 1	974	974	-	821	821	-	-	-	-	-	-	-
Stage 2	826	826	-	974	979	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	-	-	-	2.227	-	-
Pot Cap-1 Maneuver	61	79	312	62	79	373	0	-	-	800	-	-
Stage 1	302	329	-	367	387	-	0	-	-	-	-	-
Stage 2	365	385	-	302	327	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	59	78	312	61	78	373	-	-	-	800	-	-
Mov Cap-2 Maneuver	174	194	-	178	196	-	-	-	-	-	-	-
Stage 1	302	325	-	367	387	-	-	-	-	-	-	-
Stage 2	355	385	-	298	323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.9	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	373	800	-	-
HCM Lane V/C Ratio	-	-	-	0.027	0.013	-	-
HCM Control Delay (s)	-	-	0	14.9	9.6	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-	-

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	10	40	0	30	10	70	50	50	100	10
Future Vol, veh/h	0	0	10	40	0	30	10	70	50	50	100	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	13	53	0	39	13	92	66	66	132	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	442	455	139	428	428	125	145	0	0	158	0	0
Stage 1	271	271	-	151	151	-	-	-	-	-	-	-
Stage 2	171	184	-	277	277	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	524	500	907	535	518	923	1431	-	-	1416	-	-
Stage 1	733	683	-	849	770	-	-	-	-	-	-	-
Stage 2	829	746	-	727	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	478	470	907	503	487	923	1431	-	-	1416	-	-
Mov Cap-2 Maneuver	478	470	-	503	487	-	-	-	-	-	-	-
Stage 1	726	648	-	841	762	-	-	-	-	-	-	-
Stage 2	786	739	-	680	644	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	11.8	0.6	2.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	907	625	1416	-	-
HCM Lane V/C Ratio	0.009	-	-	0.015	0.147	0.046	-	-
HCM Control Delay (s)	7.5	0	-	9	11.8	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-

HCM 2010 TWSC
2: Hillview Pl & Spring Mountain Rd

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	110	10	10	100	10	10	10	10	10	10	20
Future Vol, veh/h	30	110	10	10	100	10	10	10	10	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	134	12	12	122	12	12	12	12	12	12	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	146	0	0	384	372	140	378	372	128
Stage 1	-	-	-	-	-	-	214	214	-	152	152	-
Stage 2	-	-	-	-	-	-	170	158	-	226	220	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1444	-	-	1430	-	-	572	557	905	578	557	919
Stage 1	-	-	-	-	-	-	786	724	-	848	770	-
Stage 2	-	-	-	-	-	-	830	765	-	774	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1444	-	-	1430	-	-	532	536	905	544	536	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	532	536	-	544	536	-
Stage 1	-	-	-	-	-	-	764	704	-	824	763	-
Stage 2	-	-	-	-	-	-	788	758	-	729	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.6	11.2	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	619	1444	-	-	1430	-	-	680
HCM Lane V/C Ratio	0.059	0.025	-	-	0.009	-	-	0.072
HCM Control Delay (s)	11.2	7.6	0	-	7.5	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	110	80	40	90	50
Future Vol, veh/h	70	110	80	40	90	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	100	157	114	57	129	71

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	500	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1400	-	-	-	529	902
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	706	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1400	-	-	-	488	902
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1400	-	-	-	584
HCM Lane V/C Ratio	0.071	-	-	-	0.342
HCM Control Delay (s)	7.8	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.5

HCM 2010 TWSC
4: Hudson Ave & Madrona Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	10	70	20	10	60
Future Vol, veh/h	30	10	70	20	10	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	35	12	81	23	12	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	226	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1554	-	760	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	720	1027
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	844	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	968	-	-	1554	-
HCM Lane V/C Ratio	0.084	-	-	0.052	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

HCM 2010 TWSC
5: Valley View St & Spring St

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	40	160	50	40	220
Future Vol, veh/h	60	40	160	50	40	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	81	54	216	68	54	297

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	135	0	608	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1443	-	457	943
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	386	943
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	772	-	-	1443	-
HCM Lane V/C Ratio	0.455	-	-	0.15	-
HCM Control Delay (s)	13.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	2.4	-	-	0.5	-

HCM 2010 AWSC
6: Crane Ave/Valley View St & Grayson Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	90	180	30	70	160
Future Vol, veh/h	10	90	180	30	70	160
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	122	243	41	95	216
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	10.1	10.8
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	30%
Vol Thru, %	86%	0%	70%
Vol Right, %	14%	90%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	210	100	230
LT Vol	0	10	70
Through Vol	180	0	160
RT Vol	30	90	0
Lane Flow Rate	284	135	311
Geometry Grp	1	1	1
Degree of Util (X)	0.358	0.179	0.401
Departure Headway (Hd)	4.541	4.759	4.65
Convergence, Y/N	Yes	Yes	Yes
Cap	789	750	771
Service Time	2.582	2.81	2.691
HCM Lane V/C Ratio	0.36	0.18	0.403
HCM Control Delay	10.1	8.9	10.8
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.6	0.6	1.9

HCM 2010 TWSC
7: Sulphur Spring Ave & Crane Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	40	30	160	140	20
Future Vol, veh/h	30	40	30	160	140	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	50	38	200	175	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	238	0	-	0	264	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1323	-	-	-	723	908
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1323	-	-	-	701	908
Mov Cap-2 Maneuver	-	-	-	-	701	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	897	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1323	-	-	-	722
HCM Lane V/C Ratio	0.028	-	-	-	0.277
HCM Control Delay (s)	7.8	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1

HCM 2010 TWSC
8: Main St & Pratt Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	34.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	10	50	10	60	10	940	40	30	680	10
Future Vol, veh/h	10	10	10	50	10	60	10	940	40	30	680	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	11	11	56	11	67	11	1044	44	33	756	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1955	1938	762	1927	1921	1066	767	0	0	1088	0	0
Stage 1	828	828	-	1088	1088	-	-	-	-	-	-	-
Stage 2	1127	1110	-	839	833	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	48	65	403	~ 50	67	269	842	-	-	638	-	-
Stage 1	364	384	-	260	291	-	-	-	-	-	-	-
Stage 2	247	284	-	359	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	30	61	403	~ 40	63	269	842	-	-	638	-	-
Mov Cap-2 Maneuver	30	61	-	~ 40	63	-	-	-	-	-	-	-
Stage 1	359	364	-	257	287	-	-	-	-	-	-	-
Stage 2	176	280	-	321	362	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	133.9	$ 502.4	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	842	-	-	57	74	638	-	-
HCM Lane V/C Ratio	0.013	-	-	0.585	1.802	0.052	-	-
HCM Control Delay (s)	9.3	-	-	133.9	$ 502.4	11	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.4	11.7	0.2	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
9: Main St & Elmhurst Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	40	30	920	700	40
Future Vol, veh/h	70	40	30	920	700	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	44	33	1022	778	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1888	800	822	0	-	0
Stage 1	800	-	-	-	-	-
Stage 2	1088	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	~ 77	383	803	-	-	-
Stage 1	441	-	-	-	-	-
Stage 2	322	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 70	383	803	-	-	-
Mov Cap-2 Maneuver	~ 70	-	-	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	240.3	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	803	-	100	-	-
HCM Lane V/C Ratio	0.042	-	1.222	-	-
HCM Control Delay (s)	9.7	0	240.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	8.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	50	20	20	50	180	30	650	20	80	600	60
Future Volume (veh/h)	120	50	20	20	50	180	30	650	20	80	600	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1324	1863	1350
Adj Flow Rate, veh/h	122	51	20	20	51	184	31	663	20	82	612	61
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	83	25	67	85	258	443	836	25	248	1090	109
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	646	392	120	70	400	1218	762	1278	39	536	1667	166
Grp Volume(v), veh/h	193	0	0	255	0	0	31	0	683	82	0	673
Grp Sat Flow(s),veh/h/ln	1157	0	0	1687	0	0	762	0	1317	536	0	1833
Q Serve(g_s), s	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	27.5	9.6	0.0	14.8
Cycle Q Clear(g_c), s	12.2	0.0	0.0	10.3	0.0	0.0	16.5	0.0	27.5	37.1	0.0	14.8
Prop In Lane	0.63		0.10	0.08		0.72	1.00		0.03	1.00		0.09
Lane Grp Cap(c), veh/h	325	0	0	410	0	0	443	0	861	248	0	1199
V/C Ratio(X)	0.59	0.00	0.00	0.62	0.00	0.00	0.07	0.00	0.79	0.33	0.00	0.56
Avail Cap(c_a), veh/h	561	0	0	698	0	0	688	0	1284	420	0	1787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	0.0	27.1	0.0	0.0	11.5	0.0	9.2	22.5	0.0	7.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	1.1	0.0	0.0	0.1	0.0	2.7	1.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	4.9	0.0	0.0	0.4	0.0	10.5	1.5	0.0	7.5
LnGrp Delay(d),s/veh	28.9	0.0	0.0	28.3	0.0	0.0	11.6	0.0	11.9	23.6	0.0	7.6
LnGrp LOS	C			C			B		B	C		A
Approach Vol, veh/h		193			255			714			755	
Approach Delay, s/veh		28.9			28.3			11.9			9.3	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.0		20.8		53.0		20.8
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		29.5		14.2		39.1		12.3
Green Ext Time (p_c), s		9.4		0.9		9.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC
11: Railroad Ave & Fulton Ln

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	110	10	30	210	10
Future Vol, veh/h	30	110	10	30	210	10
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	133	12	36	253	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	171	0	165	106
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1406	-	826	948
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	817	945
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	822	-	-	1403	-
HCM Lane V/C Ratio	0.322	-	-	0.009	-
HCM Control Delay (s)	11.5	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	100	30	70	80	70	40	550	40	80	520	40
Future Volume (veh/h)	80	100	30	70	80	70	40	550	40	80	520	40
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.87	0.97		0.84	1.00		0.90	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	82	103	31	72	82	72	41	567	41	82	536	41
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	184	48	145	147	108	121	608	44	170	642	49
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.07	0.50	0.50	0.10	0.53	0.53
Sat Flow, veh/h	453	834	216	382	665	489	1774	1210	87	1774	1209	92
Grp Volume(v), veh/h	216	0	0	226	0	0	41	0	608	82	0	577
Grp Sat Flow(s),veh/h/ln	1503	0	0	1536	0	0	1774	0	1297	1774	0	1302
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	1.7	0.0	34.2	3.4	0.0	29.1
Cycle Q Clear(g_c), s	9.9	0.0	0.0	9.9	0.0	0.0	1.7	0.0	34.2	3.4	0.0	29.1
Prop In Lane	0.38		0.14	0.32		0.32	1.00		0.07	1.00		0.07
Lane Grp Cap(c), veh/h	395	0	0	399	0	0	121	0	652	170	0	691
V/C Ratio(X)	0.55	0.00	0.00	0.57	0.00	0.00	0.34	0.00	0.93	0.48	0.00	0.84
Avail Cap(c_a), veh/h	522	0	0	526	0	0	364	0	999	364	0	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	27.5	0.0	0.0	34.6	0.0	18.1	33.4	0.0	15.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.6	0.0	8.4	0.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.0	4.4	0.0	0.0	0.9	0.0	13.7	1.7	0.0	10.8
LnGrp Delay(d),s/veh	27.8	0.0	0.0	28.0	0.0	0.0	35.2	0.0	26.5	34.2	0.0	18.2
LnGrp LOS	C			C			D		C	C		B
Approach Vol, veh/h		216			226			649			659	
Approach Delay, s/veh		27.8			28.0			27.0			20.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	46.0		21.9	12.2	43.9		21.9
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	3.7	31.1		11.9	5.4	36.2		11.9
Green Ext Time (p_c), s	0.0	2.9		0.5	0.0	3.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	130	90	60	150	100	60	90	30	60	80	30
Future Vol, veh/h	20	130	90	60	150	100	60	90	30	60	80	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	137	95	63	158	105	63	95	32	63	84	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.6	13.1	11.4	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	8%	19%	35%
Vol Thru, %	50%	54%	48%	47%
Vol Right, %	17%	38%	32%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	240	310	170
LT Vol	60	20	60	60
Through Vol	90	130	150	80
RT Vol	30	90	100	30
Lane Flow Rate	189	253	326	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.304	0.374	0.477	0.288
Departure Headway (Hd)	5.78	5.327	5.264	5.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	620	672	682	617
Service Time	3.842	3.383	3.317	3.862
HCM Lane V/C Ratio	0.305	0.376	0.478	0.29
HCM Control Delay	11.4	11.6	13.1	11.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.3	1.7	2.6	1.2

HCM 2010 TWSC
14: Library Ln & Adams St

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	50	10	0	90	0	40	0	10	10	10	50
Future Vol, veh/h	70	50	10	0	90	0	40	0	10	10	10	50
Conflicting Peds, #/hr	4	0	8	8	0	4	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	62	12	0	111	0	49	0	12	12	12	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	115	0	0	82	0	0	400	363	82	367	369	119
Stage 1	-	-	-	-	-	-	248	248	-	115	115	-
Stage 2	-	-	-	-	-	-	152	115	-	252	254	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1474	-	-	1515	-	-	560	565	978	589	560	933
Stage 1	-	-	-	-	-	-	756	701	-	890	800	-
Stage 2	-	-	-	-	-	-	850	800	-	752	697	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1468	-	-	1503	-	-	484	524	965	549	520	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	524	-	549	520	-
Stage 1	-	-	-	-	-	-	705	653	-	832	797	-
Stage 2	-	-	-	-	-	-	778	797	-	693	649	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.1	0	12.6	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1468	-	-	1503	-	-	766
HCM Lane V/C Ratio	0.115	0.059	-	-	-	-	-	0.113
HCM Control Delay (s)	12.6	7.6	0	-	0	-	-	10.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	30	600	80	30	590
Future Vol, veh/h	60	30	600	80	30	590
Conflicting Peds, #/hr	12	12	0	1	54	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	32	632	84	32	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1425	740	0	0	770	0
Stage 1	728	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	149	417	-	-	844	-
Stage 1	478	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	391	-	-	801	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	489	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	801	-
HCM Lane V/C Ratio	-	-	0.319	0.039	-
HCM Control Delay (s)	-	-	22.7	9.7	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-

HCM 2010 TWSC
16: Railroad Ave & Hunt Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	80	10	10	50	140	10	10	10	190	10	20
Future Vol, veh/h	30	80	10	10	50	140	10	10	10	190	10	20
Conflicting Peds, #/hr	31	0	1	1	0	31	7	0	5	5	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	91	11	11	57	159	11	11	11	216	11	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	103	0	0	349	435	103	371	361	175
Stage 1	-	-	-	-	-	-	166	166	-	190	190	-
Stage 2	-	-	-	-	-	-	183	269	-	181	171	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1319	-	-	1489	-	-	606	514	952	586	566	868
Stage 1	-	-	-	-	-	-	836	761	-	812	743	-
Stage 2	-	-	-	-	-	-	819	687	-	821	757	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1280	-	-	1488	-	-	559	480	947	534	528	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	559	480	-	534	528	-
Stage 1	-	-	-	-	-	-	812	739	-	766	714	-
Stage 2	-	-	-	-	-	-	772	660	-	773	735	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.4	11.3	16.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1280	-	-	1488	-	-	552
HCM Lane V/C Ratio	0.056	0.027	-	-	0.008	-	-	0.453
HCM Control Delay (s)	11.3	7.9	0	-	7.4	0	-	16.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.3

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	30	50	70	150	20
Future Vol, veh/h	20	30	50	70	150	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	36	60	84	181	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	144	0	-	0	144	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1432	-	-	-	846	1003
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1432	-	-	-	832	1003
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	937	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1432	-	-	-	849
HCM Lane V/C Ratio	0.017	-	-	-	0.241
HCM Control Delay (s)	7.6	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	160	30	120	100	560	70	110	530	10
Future Volume (veh/h)	0	0	210	160	30	120	100	560	70	110	530	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.94	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	0	0	223	170	32	128	106	596	74	117	564	11
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	122	209	209	39	205	129	685	28	141	711	14
Arrive On Green	0.00	0.00	0.07	0.14	0.14	0.14	0.07	0.53	0.53	0.08	0.54	0.54
Sat Flow, veh/h	0	1863	1443	1504	283	1481	1774	1148	143	1774	1292	25
Grp Volume(v), veh/h	0	0	223	202	0	128	106	0	670	117	0	575
Grp Sat Flow(s),veh/h/ln	0	1863	1443	1788	0	1481	1774	0	1290	1774	0	1318
Q Serve(g_s), s	0.0	0.0	9.0	14.6	0.0	10.8	7.8	0.0	67.0	8.6	0.0	47.4
Cycle Q Clear(g_c), s	0.0	0.0	9.0	14.6	0.0	10.8	7.8	0.0	67.0	8.6	0.0	47.4
Prop In Lane	0.00		1.00	0.84		1.00	1.00		0.11	1.00		0.02
Lane Grp Cap(c), veh/h	0	122	209	248	0	205	129	0	713	141	0	725
V/C Ratio(X)	0.00	0.00	1.07	0.81	0.00	0.62	0.82	0.00	0.94	0.83	0.00	0.79
Avail Cap(c_a), veh/h	0	126	214	471	0	390	334	0	728	334	0	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	59.6	57.7	0.0	56.0	63.0	0.0	31.4	62.5	0.0	24.7
Incr Delay (d2), s/veh	0.0	0.0	80.6	2.5	0.0	1.2	4.8	0.0	19.4	4.7	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	225.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	12.6	7.6	0.0	4.7	4.1	0.0	75.4	4.6	0.0	18.5
LnGrp Delay(d),s/veh	0.0	0.0	140.3	60.1	0.0	57.1	67.8	0.0	275.9	67.3	0.0	30.0
LnGrp LOS			F	E		E	E		F	E		C
Approach Vol, veh/h		223			330			776			692	
Approach Delay, s/veh		140.3			59.0			247.5			36.3	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	79.4		26.3	14.3	78.5		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	9.8	49.4		16.6	10.6	69.0		11.0
Green Ext Time (p_c), s	0.1	2.8		1.0	0.1	1.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	132.5
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	70	70	720	760	60
Future Volume (veh/h)	70	70	70	720	760	60
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	71	71	71	727	768	61
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	92	92	140	1029	787	63
Arrive On Green	0.11	0.11	0.08	0.79	0.66	0.66
Sat Flow, veh/h	823	823	1757	1311	1199	95
Grp Volume(v), veh/h	143	0	71	727	0	829
Grp Sat Flow(s),veh/h/ln	1658	0	1757	1311	0	1294
Q Serve(g_s), s	8.0	0.0	3.7	25.6	0.0	58.7
Cycle Q Clear(g_c), s	8.0	0.0	3.7	25.6	0.0	58.7
Prop In Lane	0.50	0.50	1.00			0.07
Lane Grp Cap(c), veh/h	186	0	140	1029	0	849
V/C Ratio(X)	0.77	0.00	0.51	0.71	0.00	0.98
Avail Cap(c_a), veh/h	693	0	734	1029	0	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.3	0.0	42.3	5.0	0.0	15.7
Incr Delay (d2), s/veh	2.5	0.0	1.1	2.2	0.0	24.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.8	9.7	0.0	26.2
LnGrp Delay(d),s/veh	43.8	0.0	43.3	7.2	0.0	39.9
LnGrp LOS	D		D	A		D
Approach Vol, veh/h	143			798	829	
Approach Delay, s/veh	43.8			10.4	39.9	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.3	68.0				80.3		15.5
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	7.6	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	5.7	60.7				27.6		10.0
Green Ext Time (p_c), s	0.0	2.2				5.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	140	140	680	800	50
Future Vol, veh/h	30	140	140	680	800	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	152	152	739	870	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1940	897	924	0	-	0
Stage 1	897	-	-	-	-	-
Stage 2	1043	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	71	337	735	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	337	735	-	-	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	315	-	-	-	-	-
Stage 2	338	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.3	1.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	735	-	130	337	-	-
HCM Lane V/C Ratio	0.207	-	0.251	0.452	-	-
HCM Control Delay (s)	11.2	-	41.7	24.2	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.8	-	0.9	2.3	-	-

HCM 2010 AWSC
21: Starr Ave & Hunt Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	100	10	20	90	10
Future Vol, veh/h	20	100	10	20	90	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	114	11	23	102	11
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.3	7.6	8.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	90%	0%	33%
Vol Thru, %	0%	17%	67%
Vol Right, %	10%	83%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	120	30
LT Vol	90	0	10
Through Vol	0	20	20
RT Vol	10	100	0
Lane Flow Rate	114	136	34
Geometry Grp	1	1	1
Degree of Util (X)	0.137	0.139	0.041
Departure Headway (Hd)	4.347	3.658	4.306
Convergence, Y/N	Yes	Yes	Yes
Cap	819	965	820
Service Time	2.402	1.739	2.395
HCM Lane V/C Ratio	0.139	0.141	0.041
HCM Control Delay	8.1	7.3	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.5	0.1

HCM 2010 TWSC
22: Pope Street & Starr Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	260	300	80	110	20
Future Vol, veh/h	30	260	300	80	110	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	283	326	87	120	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	413	0	-	0	719	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	349	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	395	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	714	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	382	676
Mov Cap-2 Maneuver	-	-	-	-	382	-
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	409
HCM Lane V/C Ratio	0.028	-	-	-	0.345
HCM Control Delay (s)	8.2	0	-	-	18.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

HCM 2010 TWSC
23: College Ave/Paseo Grand Dr & Pope Street

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	300	40	20	300	10	40	0	30	10	0	20
Future Vol, veh/h	40	300	40	20	300	10	40	0	30	10	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	309	41	21	309	10	41	0	31	10	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	350	0	0	779	773	330	783	788	314
Stage 1	-	-	-	-	-	-	412	412	-	356	356	-
Stage 2	-	-	-	-	-	-	367	361	-	427	432	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1241	-	-	1209	-	-	313	330	712	311	323	726
Stage 1	-	-	-	-	-	-	617	594	-	661	629	-
Stage 2	-	-	-	-	-	-	653	626	-	606	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1241	-	-	1209	-	-	293	314	712	286	307	726
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	314	-	286	307	-
Stage 1	-	-	-	-	-	-	597	574	-	639	618	-
Stage 2	-	-	-	-	-	-	623	615	-	561	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.5	15.4	13
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	712	1241	-	-	1209	-	-	480
HCM Lane V/C Ratio	0.141	0.043	0.033	-	-	0.017	-	-	0.064
HCM Control Delay (s)	19.3	10.3	8	-	-	8	-	-	13
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	0.1	-	-	0.1	-	-	0.2

HCM 2010 TWSC
24: Silverado Trail & Pratt Ave

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	30	30	620	780	30
Future Vol, veh/h	30	30	30	620	780	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	32	32	667	839	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1586	855	871	0	-	0
Stage 1	855	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	118	356	770	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	110	356	770	-	-	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	388	-	-	-	-	-
Stage 2	475	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.2	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	770	-	168	-	-
HCM Lane V/C Ratio	0.042	-	0.384	-	-
HCM Control Delay (s)	9.9	0	39.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	10	640	20	10	800
Future Vol, veh/h	50	10	640	20	10	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	11	688	22	11	860

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1570	688	0	0	710	0
Stage 1	688	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	122	446	-	-	889	-
Stage 1	499	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	121	446	-	-	889	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	405	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	274	889	-
HCM Lane V/C Ratio	-	-	0.235	0.012	-
HCM Control Delay (s)	-	-	22.1	9.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0	-

HCM 2010 TWSC
26: Silverado Trail & Pope Street

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	28.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	200	130	530	620	230
Future Vol, veh/h	130	200	130	530	620	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	141	217	141	576	674	250

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1532	674	924	0	-	0
Stage 1	674	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 128	455	739	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 104	455	739	-	-	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	155.9	2.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	739	-	298	-	-
HCM Lane V/C Ratio	0.191	-	1.204	-	-
HCM Control Delay (s)	11	-	155.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.7	-	16	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 TWSC
27: Main St & Mills Ln

Scenario: 2040 GP Buildout
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	40	10	780	0	10	810	20
Future Vol, veh/h	0	0	0	0	0	40	10	780	0	10	810	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	41	10	796	0	10	827	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1694	1673	837	1673	1683	796	847	0	0	796	0	0
Stage 1	857	857	-	816	816	-	-	-	-	-	-	-
Stage 2	837	816	-	857	867	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	73	95	365	76	94	385	786	-	-	821	-	-
Stage 1	351	373	-	369	389	-	-	-	-	-	-	-
Stage 2	360	389	-	351	369	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	64	92	365	74	91	385	786	-	-	821	-	-
Mov Cap-2 Maneuver	64	92	-	74	91	-	-	-	-	-	-	-
Stage 1	343	369	-	361	380	-	-	-	-	-	-	-
Stage 2	314	380	-	347	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.5	0.1	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	786	-	-	-	385	821	-	-
HCM Lane V/C Ratio	0.013	-	-	-	0.106	0.012	-	-
HCM Control Delay (s)	9.6	-	-	0	15.5	9.4	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0	-	-

HCM 2010 TWSC
8: Main St & Pratt Ave

2040 GP Buildout
Time Period: Saturday Peak Ho

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	10	10	10	30	10	700	20	20	730	10
Future Vol, veh/h	10	0	10	10	10	30	10	700	20	20	730	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	97	92	97	92	97	97	97	97	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	0	11	10	11	31	11	722	21	21	753	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1577	1566	759	1561	1561	733	764	0	0	743	0	0
Stage 1	801	801	-	755	755	-	-	-	-	-	-	-
Stage 2	776	765	-	806	806	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	88	111	405	91	111	419	844	-	-	860	-	-
Stage 1	377	395	-	399	415	-	-	-	-	-	-	-
Stage 2	389	411	-	374	393	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	107	405	86	107	419	844	-	-	860	-	-
Mov Cap-2 Maneuver	73	107	-	86	107	-	-	-	-	-	-	-
Stage 1	372	386	-	394	410	-	-	-	-	-	-	-
Stage 2	346	406	-	355	384	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	40.1	33.8	0.1	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	844	-	-	124	176	860	-	-
HCM Lane V/C Ratio	0.013	-	-	0.175	0.296	0.024	-	-
HCM Control Delay (s)	9.3	-	-	40.1	33.8	9.3	-	-
HCM Lane LOS	A	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	20	30	700	710	40
Future Vol, veh/h	30	20	30	700	710	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	21	31	729	740	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1552	761	782	0	-	0
Stage 1	761	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	124	404	831	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	116	404	831	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.4	0.4	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	831	-	162	-	-
HCM Lane V/C Ratio	0.038	-	0.322	-	-
HCM Control Delay (s)	9.5	0	37.4	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

2040 GP Buildout
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	30	40	20	20	80	20	570	10	60	590	80
Future Volume (veh/h)	80	30	40	20	20	80	20	570	10	60	590	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	25	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	82	31	41	21	21	82	21	588	10	62	608	82
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	199	68	64	93	61	166	227	874	15	451	798	79
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	690	458	416	148	386	1042	743	1285	22	808	1129	152
Grp Volume(v), veh/h	154	0	0	124	0	0	21	0	598	62	0	690
Grp Sat Flow(s),veh/h/ln	1564	0	0	1576	0	0	743	0	1307	808	0	1282
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	1.2	0.0	15.6	2.8	0.0	21.6
Cycle Q Clear(g_c), s	4.2	0.0	0.0	3.6	0.0	0.0	22.7	0.0	15.6	18.4	0.0	21.6
Prop In Lane	0.53		0.27	0.17		0.66	1.00		0.02	1.00		0.12
Lane Grp Cap(c), veh/h	332	0	0	320	0	0	227	0	889	451	0	877
V/C Ratio(X)	0.46	0.00	0.00	0.39	0.00	0.00	0.09	0.00	0.67	0.14	0.00	0.79
Avail Cap(c_a), veh/h	930	0	0	947	0	0	868	0	1828	1026	0	1793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	0.0	25.7	0.0	0.0	26.6	0.0	5.8	11.5	0.0	8.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	0.2	0.0	1.3	0.2	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	2.1	0.0	0.0	0.4	0.0	6.2	0.7	0.0	20.5
LnGrp Delay(d),s/veh	27.0	0.0	0.0	26.3	0.0	0.0	26.9	0.0	7.0	11.7	0.0	38.4
LnGrp LOS	C			C			C		A	B		D
Approach Vol, veh/h		154			124			619			752	
Approach Delay, s/veh		27.0			26.3			7.7			36.2	
Approach LOS		C			C			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		37.7		13.8		37.7		13.8
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		24.7		6.2		23.6		5.6
Green Ext Time (p_c), s		7.8		0.8		9.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

2040 GP Buildout
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	60	30	50	40	50	30	520	30	50	580	20
Future Volume (veh/h)	40	60	30	50	40	50	30	520	30	50	580	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	20	0
Ped-Bike Adj(A_pbT)	0.75		0.65	0.74		0.66	1.00		0.91	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	41	62	31	52	41	52	31	536	31	52	598	21
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	169	73	137	101	102	95	652	38	128	705	16
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.06	0.49	0.49	0.08	0.51	0.51
Sat Flow, veh/h	315	730	314	356	438	444	1757	1220	71	1757	1254	44
Grp Volume(v), veh/h	134	0	0	145	0	0	31	0	567	52	0	619
Grp Sat Flow(s),veh/h/ln	1359	0	0	1237	0	0	1757	0	1290	1757	0	1298
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	32.2	2.3	0.0	35.9
Cycle Q Clear(g_c), s	5.6	0.0	0.0	6.7	0.0	0.0	1.4	0.0	32.2	2.3	0.0	35.9
Prop In Lane	0.31		0.23	0.36		0.36	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	367	0	0	341	0	0	95	0	690	128	0	720
V/C Ratio(X)	0.37	0.00	0.00	0.43	0.00	0.00	0.33	0.00	0.82	0.41	0.00	0.86
Avail Cap(c_a), veh/h	461	0	0	427	0	0	350	0	965	350	0	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	29.6	0.0	0.0	41.0	0.0	17.2	39.9	0.0	19.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.7	0.0	2.8	0.8	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	3.1	0.0	0.0	0.8	0.0	12.0	1.3	0.0	25.8
LnGrp Delay(d),s/veh	29.4	0.0	0.0	29.9	0.0	0.0	41.8	0.0	20.0	40.7	0.0	63.4
LnGrp LOS	C			C			D		C	D		E
Approach Vol, veh/h		134			145			598			671	
Approach Delay, s/veh		29.4			29.9			21.2			61.6	
Approach LOS		C			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	45.6		25.5	10.9	43.9		25.5
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	13.4	37.9		8.7	4.3	34.2		7.6
Green Ext Time (p_c), s	0.0	3.0		0.4	0.0	2.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	30	550	70	20	640
Future Vol, veh/h	40	30	550	70	20	640
Conflicting Peds, #/hr	39	71	0	169	169	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	31	573	73	21	667

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1527	850	0	0	815	0
Stage 1	779	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	129	359	-	-	808	-
Stage 1	451	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	281	-	-	678	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	449	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	247	678	-
HCM Lane V/C Ratio	-	-	0.295	0.031	-
HCM Control Delay (s)	-	-	25.6	10.5	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	⋔	
Traffic Vol, veh/h	10	30	30	50	120	10
Future Vol, veh/h	10	30	30	50	120	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	20	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	34	34	57	138	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	91	0	-	0	90	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	56	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1498	-	-	-	908	1036
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	902	1036
Mov Cap-2 Maneuver	-	-	-	-	902	-
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	964	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	911
HCM Lane V/C Ratio	0.008	-	-	-	0.164
HCM Control Delay (s)	7.4	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

2040 GP Buildout
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	160	130	40	80	60	540	60	70	600	10
Future Volume (veh/h)	0	0	160	130	40	80	60	540	60	70	600	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		0.48	1.00		0.72	1.00		0.91	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	163	133	41	82	61	551	61	71	612	10
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	120	140	214	66	174	104	683	23	107	710	4
Arrive On Green	0.00	0.00	0.07	0.17	0.17	0.17	0.06	0.50	0.50	0.07	0.50	0.50
Sat Flow, veh/h	0	1845	750	1358	419	1135	1757	1146	127	1757	1284	21
Grp Volume(v), veh/h	0	0	163	174	0	82	61	0	612	71	0	622
Grp Sat Flow(s),veh/h/ln	0	1845	750	1777	0	1135	1757	0	1273	1757	0	1305
Q Serve(g_s), s	0.0	0.0	9.0	11.2	0.0	8.0	4.2	0.0	57.6	4.9	0.0	56.4
Cycle Q Clear(g_c), s	0.0	0.0	9.0	11.2	0.0	8.0	4.2	0.0	57.6	4.9	0.0	56.4
Prop In Lane	0.00		1.00	0.76		1.00	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	0	120	140	280	0	174	104	0	706	107	0	714
V/C Ratio(X)	0.00	0.00	1.16	0.62	0.00	0.47	0.59	0.00	0.87	0.66	0.00	0.87
Avail Cap(c_a), veh/h	0	133	154	499	0	319	353	0	767	353	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	62.0	54.3	0.0	52.9	63.3	0.0	31.5	63.4	0.0	31.3
Incr Delay (d2), s/veh	0.0	0.0	127.0	2.2	0.0	2.0	2.0	0.0	9.1	2.6	0.0	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	195.1	0.0	0.0	68.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	10.3	6.4	0.0	2.9	2.3	0.0	66.7	2.7	0.0	42.3
LnGrp Delay(d),s/veh	0.0	0.0	189.0	56.5	0.0	54.9	65.3	0.0	235.7	66.0	0.0	108.4
LnGrp LOS			F	E		D	E		F	E		F
Approach Vol, veh/h		163			256			673			693	
Approach Delay, s/veh		189.0			56.0			220.2			104.0	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	70.3		28.9	11.9	70.0		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	25.0	* 75		* 35	25.0	* 75		9.0
Max Q Clear Time (g_c+I1), s	6.2	58.4		13.2	6.9	59.6		11.0
Green Ext Time (p_c), s	0.1	2.8		1.4	0.1	2.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	148.7
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

2040 GP Buildout
Time Period: Saturday Peak Ho

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	40	40	670	830	30
Future Volume (veh/h)	30	40	40	670	830	30
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	30	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	30	40	40	677	838	30
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	69	92	110	1041	857	31
Arrive On Green	0.10	0.10	0.06	0.79	0.68	0.68
Sat Flow, veh/h	696	927	1757	1311	1258	45
Grp Volume(v), veh/h	71	0	40	677	0	868
Grp Sat Flow(s),veh/h/ln	1646	0	1757	1311	0	1303
Q Serve(g_s), s	3.8	0.0	2.0	20.3	0.0	58.9
Cycle Q Clear(g_c), s	3.8	0.0	2.0	20.3	0.0	58.9
Prop In Lane	0.42	0.56	1.00			0.03
Lane Grp Cap(c), veh/h	164	0	110	1041	0	888
V/C Ratio(X)	0.43	0.00	0.36	0.65	0.00	0.98
Avail Cap(c_a), veh/h	711	0	759	1041	0	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	41.7	5.8	0.0	14.1
Incr Delay (d2), s/veh	0.7	0.0	0.8	1.4	0.0	24.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	17.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.0	18.6	0.0	26.7
LnGrp Delay(d),s/veh	39.9	0.0	42.4	24.4	0.0	38.2
LnGrp LOS	D		D	C		D
Approach Vol, veh/h	71			717	868	
Approach Delay, s/veh	39.9			25.4	38.2	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.5	68.2				78.7		13.9
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	5.8	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	4.0	60.9				22.3		5.8
Green Ext Time (p_c), s	0.0	2.2				5.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	60	70	670	840	20
Future Vol, veh/h	10	60	70	670	840	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	10	62	72	691	866	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1712	877	887	0	-	0
Stage 1	877	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	99	346	759	-	-	-
Stage 1	405	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	90	346	759	-	-	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	424	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	759	-	205	346	-	-
HCM Lane V/C Ratio	0.095	-	0.05	0.179	-	-
HCM Control Delay (s)	10.2	-	23.5	17.7	-	-
HCM Lane LOS	B	-	C	C	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.6	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	20	730	30	10	680
Future Vol, veh/h	40	20	730	30	10	680
Conflicting Peds, #/hr	0	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	21	760	31	10	708

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1489	762	0	0	792	0
Stage 1	761	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	136	403	-	-	824	-
Stage 1	459	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	402	-	-	823	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	304	823	-
HCM Lane V/C Ratio	-	-	0.206	0.013	-
HCM Control Delay (s)	-	-	19.9	9.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Intersection	
Int Delay, s/veh	31

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	150	160	620	560	160
Future Vol, veh/h	140	150	160	620	560	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	147	158	168	653	589	168

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1578	589	757	0	-	0
Stage 1	589	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	~ 120	506	849	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 96	506	849	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	359	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	185.6	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	849	-	243	-	-
HCM Lane V/C Ratio	0.198	-	1.256	-	-
HCM Control Delay (s)	10.3	-	185.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.7	-	15.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	10	690	0	10	860	30
Future Vol, veh/h	0	0	0	0	0	10	10	690	0	10	860	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	10	10	704	0	10	878	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1643	1638	894	1638	1653	704	909	0	0	704	0	0
Stage 1	914	914	-	724	724	-	-	-	-	-	-	-
Stage 2	729	724	-	914	929	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	79	100	338	80	98	435	745	-	-	889	-	-
Stage 1	326	351	-	415	429	-	-	-	-	-	-	-
Stage 2	413	429	-	326	345	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	97	338	78	95	435	745	-	-	889	-	-
Mov Cap-2 Maneuver	75	97	-	78	95	-	-	-	-	-	-	-
Stage 1	319	347	-	406	420	-	-	-	-	-	-	-
Stage 2	394	420	-	322	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.5	0.1	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	745	-	-	-	435	889	-	-
HCM Lane V/C Ratio	0.014	-	-	-	0.023	0.011	-	-
HCM Control Delay (s)	9.9	-	-	0	13.5	9.1	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

YEAR 2040 GENERAL PLAN BUILDOUT WITH OAK AVENUE EXTENSION
SYNCHRO LOS OUTPUTS

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	10	110	10	50	0	70	20	20	100	0
Future Vol, veh/h	0	0	10	110	10	50	0	70	20	20	100	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	14	155	14	70	0	99	28	28	141	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	352	324	141	317	310	113	141	0	0	127	0	0
Stage 1	197	197	-	113	113	-	-	-	-	-	-	-
Stage 2	155	127	-	204	197	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	601	592	904	634	603	937	1436	-	-	1453	-	-
Stage 1	803	736	-	890	800	-	-	-	-	-	-	-
Stage 2	845	789	-	796	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	580	904	614	590	937	1436	-	-	1453	-	-
Mov Cap-2 Maneuver	537	580	-	614	590	-	-	-	-	-	-	-
Stage 1	803	721	-	890	800	-	-	-	-	-	-	-
Stage 2	768	789	-	767	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	13.1	0	1.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1436	-	-	904	681	1453	-	-
HCM Lane V/C Ratio	-	-	-	0.016	0.352	0.019	-	-
HCM Control Delay (s)	0	-	-	9	13.1	7.5	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	170	20	0	70	20	10	10	10	20	10	10
Future Vol, veh/h	30	170	20	0	70	20	10	10	10	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	236	28	0	97	28	14	14	14	28	14	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	125	0	0	264	0	0	459	459	250	459	459	111
Stage 1	-	-	-	-	-	-	334	334	-	111	111	-
Stage 2	-	-	-	-	-	-	125	125	-	348	348	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1455	-	-	1294	-	-	511	497	786	511	497	940
Stage 1	-	-	-	-	-	-	678	641	-	892	802	-
Stage 2	-	-	-	-	-	-	877	791	-	666	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1455	-	-	1294	-	-	480	480	786	478	480	940
Mov Cap-2 Maneuver	-	-	-	-	-	-	480	480	-	478	480	-
Stage 1	-	-	-	-	-	-	655	619	-	862	802	-
Stage 2	-	-	-	-	-	-	849	791	-	618	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	12.1	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1455	-	-	1294	-	-	546
HCM Lane V/C Ratio	0.075	0.029	-	-	-	-	-	0.102
HCM Control Delay (s)	12.1	7.5	0	-	0	-	-	12.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	140	100	40	80	120
Future Vol, veh/h	50	140	100	40	80	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	72	203	145	58	116	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	203	0	-	0	521	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1363	-	-	-	514	867
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1363	-	-	-	483	867
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1363	-	-	-	658
HCM Lane V/C Ratio	0.053	-	-	-	0.441
HCM Control Delay (s)	7.8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

HCM 2010 TWSC
4: Hudson Ave & Madrona Ave

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	10	100	40	10	50
Future Vol, veh/h	30	10	100	40	10	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	15	152	61	15	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	418	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1537	-	590	1012
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	530	1012
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	700	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	879	-	-	1537	-
HCM Lane V/C Ratio	0.103	-	-	0.099	-
HCM Control Delay (s)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	9.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	50	230	30	40	210
Future Vol, veh/h	40	50	230	30	40	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	56	70	324	42	56	296

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	781	91
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	690	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1454	-	362	964
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	496	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1454	-	279	964
Mov Cap-2 Maneuver	-	-	-	-	279	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	496	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.2	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	692	-	-	1454	-
HCM Lane V/C Ratio	0.509	-	-	0.223	-
HCM Control Delay (s)	15.5	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.9	-	-	0.9	-

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	180	90	60	210	110
Future Vol, veh/h	30	180	90	60	210	110
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	43	261	130	87	304	159
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.3	10.7	18.6
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	14%	66%
Vol Thru, %	60%	0%	34%
Vol Right, %	40%	86%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	150	210	320
LT Vol	0	30	210
Through Vol	90	0	110
RT Vol	60	180	0
Lane Flow Rate	217	304	464
Geometry Grp	1	1	1
Degree of Util (X)	0.316	0.441	0.676
Departure Headway (Hd)	5.23	5.211	5.246
Convergence, Y/N	Yes	Yes	Yes
Cap	687	691	691
Service Time	3.268	3.25	3.277
HCM Lane V/C Ratio	0.316	0.44	0.671
HCM Control Delay	10.7	12.3	18.6
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.4	2.3	5.3

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	20	120	110	10
Future Vol, veh/h	10	10	20	120	110	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	14	27	162	149	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	150	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1379	-	-	-	840	943
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1379	-	-	-	832	943
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1379	-	-	-	840
HCM Lane V/C Ratio	0.01	-	-	-	0.193
HCM Control Delay (s)	7.6	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	10	30	0	30	10	720	40	30	900	10
Future Vol, veh/h	10	0	10	30	0	30	10	720	40	30	900	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	0	11	32	0	32	11	766	43	32	957	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1853	1858	963	1842	1842	788	968	0	0	809	0	0
Stage 1	1027	1027	-	810	810	-	-	-	-	-	-	-
Stage 2	826	831	-	1032	1032	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	56	73	309	57	75	390	708	-	-	812	-	-
Stage 1	282	310	-	372	392	-	-	-	-	-	-	-
Stage 2	365	383	-	280	309	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	69	309	53	71	390	708	-	-	812	-	-
Mov Cap-2 Maneuver	49	69	-	53	71	-	-	-	-	-	-	-
Stage 1	277	298	-	366	386	-	-	-	-	-	-	-
Stage 2	330	377	-	260	297	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	60.9	103.3	0.1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	708	-	-	85	93	812	-	-
HCM Lane V/C Ratio	0.015	-	-	0.25	0.686	0.039	-	-
HCM Control Delay (s)	10.2	-	-	60.9	103.3	9.6	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	3.4	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	30	50	740	810	130
Future Vol, veh/h	30	30	50	740	810	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	32	54	796	871	140

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1845	941	1011	0	-	0
Stage 1	941	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	82	318	682	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	70	318	682	-	-	-
Mov Cap-2 Maneuver	70	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	70.4	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	682	-	115	-	-
HCM Lane V/C Ratio	0.079	-	0.561	-	-
HCM Control Delay (s)	10.7	0	70.4	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.3	-	2.7	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	50	50	20	60	80	40	610	20	120	610	110
Future Volume (veh/h)	100	50	50	20	60	80	40	610	20	120	610	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	112	56	56	22	67	90	45	685	22	135	685	124
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	181	82	68	68	142	167	184	874	28	318	747	135
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	612	412	341	116	715	840	665	1263	41	731	1080	195
Grp Volume(v), veh/h	224	0	0	179	0	0	45	0	707	135	0	809
Grp Sat Flow(s),veh/h/ln	1364	0	0	1671	0	0	665	0	1303	731	0	1275
Q Serve(g_s), s	5.6	0.0	0.0	0.0	0.0	0.0	5.6	0.0	33.2	13.8	0.0	48.5
Cycle Q Clear(g_c), s	14.4	0.0	0.0	8.8	0.0	0.0	54.1	0.0	33.2	47.0	0.0	48.5
Prop In Lane	0.50		0.25	0.12		0.50	1.00		0.03	1.00		0.15
Lane Grp Cap(c), veh/h	331	0	0	377	0	0	184	0	902	318	0	883
V/C Ratio(X)	0.68	0.00	0.00	0.47	0.00	0.00	0.24	0.00	0.78	0.42	0.00	0.92
Avail Cap(c_a), veh/h	498	0	0	566	0	0	251	0	1033	392	0	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	0.0	32.7	0.0	0.0	34.5	0.0	9.4	25.2	0.0	11.8
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.7	0.0	0.0	1.0	0.0	3.9	1.3	0.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	4.1	0.0	0.0	1.1	0.0	12.8	2.9	0.0	19.6
LnGrp Delay(d),s/veh	36.6	0.0	0.0	33.4	0.0	0.0	35.5	0.0	13.3	26.5	0.0	24.0
LnGrp LOS	D			C			D		B	C		C
Approach Vol, veh/h		224			179			752			944	
Approach Delay, s/veh		36.6			33.4			14.7			24.4	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		67.5		23.3		67.5		23.3
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		56.1		16.4		50.5		10.8
Green Ext Time (p_c), s		6.8		0.9		9.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	150	10	20	120	20
Future Vol, veh/h	30	150	10	20	120	20
Conflicting Peds, #/hr	0	2	2	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	181	12	24	145	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	219	0	178	130
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1344	-	809	917
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	971	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1341	-	799	914
Mov Cap-2 Maneuver	-	-	-	-	799	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	814	-	-	1341	-
HCM Lane V/C Ratio	0.207	-	-	0.009	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	90	40	30	70	40	50	570	50	70	540	70
Future Volume (veh/h)	60	90	40	30	70	40	50	570	50	70	540	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.91	0.96		0.93	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	65	98	43	33	76	43	54	620	54	76	587	76
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	132	168	64	96	185	90	135	655	57	156	640	83
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.55	0.55	0.09	0.56	0.56
Sat Flow, veh/h	395	876	335	228	967	471	1757	1188	103	1757	1136	147
Grp Volume(v), veh/h	206	0	0	152	0	0	54	0	674	76	0	663
Grp Sat Flow(s),veh/h/ln	1606	0	0	1666	0	0	1757	0	1291	1757	0	1283
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	2.5	0.0	41.1	3.5	0.0	39.2
Cycle Q Clear(g_c), s	9.5	0.0	0.0	6.5	0.0	0.0	2.5	0.0	41.1	3.5	0.0	39.2
Prop In Lane	0.32		0.21	0.22		0.28	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	364	0	0	372	0	0	135	0	712	156	0	723
V/C Ratio(X)	0.57	0.00	0.00	0.41	0.00	0.00	0.40	0.00	0.95	0.49	0.00	0.92
Avail Cap(c_a), veh/h	506	0	0	517	0	0	335	0	924	335	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	0.0	30.1	0.0	0.0	36.9	0.0	17.7	36.4	0.0	16.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.3	0.0	0.0	0.7	0.0	14.2	0.9	0.0	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	3.2	0.0	0.0	1.2	0.0	17.2	1.7	0.0	15.7
LnGrp Delay(d),s/veh	31.6	0.0	0.0	30.3	0.0	0.0	37.6	0.0	31.9	37.2	0.0	27.1
LnGrp LOS	C			C			D		C	D		C
Approach Vol, veh/h		206			152			728			739	
Approach Delay, s/veh		31.6			30.3			32.3			28.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	52.0		20.8	12.2	50.9		20.8
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	4.5	41.2		8.5	5.5	43.1		11.5
Green Ext Time (p_c), s	0.0	3.2		0.3	0.0	3.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	100	80	20	50	40	80	110	60	60	70	20
Future Vol, veh/h	30	100	80	20	50	40	80	110	60	60	70	20
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	35	116	93	23	58	47	93	128	70	70	81	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	9.7	11.8	10.4
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	14%	18%	40%
Vol Thru, %	44%	48%	45%	47%
Vol Right, %	24%	38%	36%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	210	110	150
LT Vol	80	30	20	60
Through Vol	110	100	50	70
RT Vol	60	80	40	20
Lane Flow Rate	291	244	128	174
Geometry Grp	1	1	1	1
Degree of Util (X)	0.416	0.353	0.192	0.262
Departure Headway (Hd)	5.157	5.205	5.416	5.408
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	691	661	663
Service Time	3.19	3.239	3.456	3.446
HCM Lane V/C Ratio	0.417	0.353	0.194	0.262
HCM Control Delay	11.8	11.1	9.7	10.4
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.1	1.6	0.7	1

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	90	30	0	30	10	10	0	0	0	0	10
Future Vol, veh/h	40	90	30	0	30	10	10	0	0	0	0	10
Conflicting Peds, #/hr	5	0	3	3	0	5	1	0	2	2	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	53	118	39	0	39	13	13	0	0	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	160	0	0	300	304	143	297	317	52
Stage 1	-	-	-	-	-	-	247	247	-	51	51	-
Stage 2	-	-	-	-	-	-	53	57	-	246	266	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1541	-	-	1413	-	-	650	608	902	653	597	1013
Stage 1	-	-	-	-	-	-	755	700	-	959	850	-
Stage 2	-	-	-	-	-	-	957	845	-	756	687	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1534	-	-	1409	-	-	621	580	898	630	570	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	621	580	-	630	570	-
Stage 1	-	-	-	-	-	-	724	671	-	918	846	-
Stage 2	-	-	-	-	-	-	944	841	-	726	659	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	10.9	8.6
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	621	1534	-	-	1409	-	-	1007
HCM Lane V/C Ratio	0.021	0.034	-	-	-	-	-	0.013
HCM Control Delay (s)	10.9	7.4	0	-	0	-	-	8.6
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	20	650	110	20	590
Future Vol, veh/h	40	20	650	110	20	590
Conflicting Peds, #/hr	0	2	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	21	677	115	21	615

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1397	742	0	0	797	0
Stage 1	740	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	155	414	-	-	821	-
Stage 1	470	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	150	411	-	-	817	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	317	817	-
HCM Lane V/C Ratio	-	-	0.197	0.025	-
HCM Control Delay (s)	-	-	19.1	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	60	20	10	40	190	10	10	10	140	10	10
Future Vol, veh/h	50	60	20	10	40	190	10	10	10	140	10	10
Conflicting Peds, #/hr	15	0	15	15	0	15	0	0	4	4	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	60	72	24	12	48	229	12	12	12	169	12	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	111	0	0	418	535	103	422	433	178
Stage 1	-	-	-	-	-	-	219	219	-	202	202	-
Stage 2	-	-	-	-	-	-	199	316	-	220	231	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1264	-	-	1473	-	-	544	450	949	540	514	862
Stage 1	-	-	-	-	-	-	781	720	-	798	732	-
Stage 2	-	-	-	-	-	-	801	653	-	780	711	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1246	-	-	1452	-	-	494	411	932	488	469	850
Mov Cap-2 Maneuver	-	-	-	-	-	-	494	411	-	488	469	-
Stage 1	-	-	-	-	-	-	730	674	-	746	714	-
Stage 2	-	-	-	-	-	-	769	637	-	715	665	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	0.3	12.1	16.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1246	-	-	1452	-	-	500
HCM Lane V/C Ratio	0.067	0.048	-	-	0.008	-	-	0.386
HCM Control Delay (s)	12.1	8	0	-	7.5	0	-	16.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	1.8

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	30	20	0	40	60	20	30	0	95	25	20
Future Vol, veh/h	30	30	20	0	40	60	20	30	0	95	25	20
Peak Hour Factor	0.78	0.78	0.92	0.92	0.78	0.78	0.92	0.92	0.92	0.78	0.92	0.78
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	38	38	22	0	51	77	22	33	0	122	27	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8	8.1	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	38%	0%	68%
Vol Thru, %	60%	38%	40%	18%
Vol Right, %	0%	25%	60%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	80	100	140
LT Vol	20	30	0	95
Through Vol	30	30	40	25
RT Vol	0	20	60	20
Lane Flow Rate	54	99	128	175
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.125	0.151	0.222
Departure Headway (Hd)	4.747	4.563	4.252	4.575
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	755	786	844	786
Service Time	2.775	2.588	2.276	2.599
HCM Lane V/C Ratio	0.072	0.126	0.152	0.223
HCM Control Delay	8.1	8.2	8	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.5	0.8

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	145	200	40	150	65	595	80	100	495	10
Future Volume (veh/h)	0	0	145	200	40	150	65	595	80	100	495	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84	1.00		0.92	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	156	215	43	161	70	640	86	108	532	11
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	114	172	243	49	236	102	666	32	129	708	15
Arrive On Green	0.00	0.00	0.06	0.16	0.16	0.16	0.06	0.54	0.54	0.07	0.55	0.55
Sat Flow, veh/h	0	1845	1313	1476	295	1437	1757	1127	151	1757	1279	26
Grp Volume(v), veh/h	0	0	156	258	0	161	70	0	726	108	0	543
Grp Sat Flow(s),veh/h/ln	0	1845	1313	1771	0	1437	1757	0	1278	1757	0	1306
Q Serve(g_s), s	0.0	0.0	9.0	20.8	0.0	15.4	5.7	0.0	78.6	8.9	0.0	46.5
Cycle Q Clear(g_c), s	0.0	0.0	9.0	20.8	0.0	15.4	5.7	0.0	78.6	8.9	0.0	46.5
Prop In Lane	0.00		1.00	0.83		1.00	1.00		0.12	1.00		0.02
Lane Grp Cap(c), veh/h	0	114	172	291	0	236	102	0	698	129	0	722
V/C Ratio(X)	0.00	0.00	0.91	0.89	0.00	0.68	0.69	0.00	1.04	0.84	0.00	0.75
Avail Cap(c_a), veh/h	0	114	172	355	0	288	120	0	687	148	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	64.0	59.7	0.0	57.5	67.6	0.0	33.8	66.9	0.0	25.0
Incr Delay (d2), s/veh	0.0	0.0	42.5	19.8	0.0	4.9	8.5	0.0	45.0	26.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	212.4	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	8.3	11.8	0.0	6.5	3.0	0.0	86.8	5.3	0.0	17.5
LnGrp Delay(d),s/veh	0.0	0.0	106.5	79.5	0.0	62.3	76.1	0.0	291.2	93.2	0.0	28.9
LnGrp LOS			F	E		E	E		F	F		C
Approach Vol, veh/h		156			419			796			651	
Approach Delay, s/veh		106.5			72.9			272.3			39.6	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	88.6		31.7	14.5	86.3		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	10.3	* 78		* 29	12.3	* 79		9.0
Max Q Clear Time (g_c+I1), s	17.7	48.5		22.8	10.9	80.6		11.0
Green Ext Time (p_c), s	0.0	2.6		1.2	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	143.3
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

2040 GP Buildout + Oak Extn
Time Period: AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	140	100	700	760	120
Future Volume (veh/h)	80	140	100	700	760	120
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	84	147	105	737	800	126
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	91	160	111	1019	753	119
Arrive On Green	0.15	0.15	0.06	0.78	0.68	0.68
Sat Flow, veh/h	591	1034	1757	1311	1106	174
Grp Volume(v), veh/h	232	0	105	737	0	926
Grp Sat Flow(s),veh/h/ln	1633	0	1757	1311	0	1280
Q Serve(g_s), s	20.2	0.0	8.6	41.2	0.0	98.1
Cycle Q Clear(g_c), s	20.2	0.0	8.6	41.2	0.0	98.1
Prop In Lane	0.36	0.63	1.00			0.14
Lane Grp Cap(c), veh/h	253	0	111	1019	0	872
V/C Ratio(X)	0.92	0.00	0.95	0.72	0.00	1.06
Avail Cap(c_a), veh/h	434	0	111	1019	0	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	67.2	8.2	0.0	22.9
Incr Delay (d2), s/veh	9.2	0.0	67.5	2.6	0.0	48.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	0.0	6.3	15.5	0.0	45.8
LnGrp Delay(d),s/veh	69.1	0.0	134.7	10.7	0.0	71.2
LnGrp LOS	E		F	B		F
Approach Vol, veh/h	232			842	926	
Approach Delay, s/veh	69.1			26.2	71.2	
Approach LOS	E			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.8	103.2				117.0		27.0
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	9.1	98.1				111.9		38.3
Max Q Clear Time (g_c+I1), s	10.6	100.1				43.2		22.2
Green Ext Time (p_c), s	0.0	0.0				6.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.0
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	100	80	810	770	40
Future Vol, veh/h	20	100	80	810	770	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	104	83	844	802	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1833	823	844	0	-	0
Stage 1	823	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	83	372	788	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	74	372	788	-	-	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	385	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	788	-	176	372	-	-
HCM Lane V/C Ratio	0.106	-	0.118	0.28	-	-
HCM Control Delay (s)	10.1	-	28.2	18.4	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	1.1	-	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	80	20	30	110	10
Future Vol, veh/h	20	80	20	30	110	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	94	24	35	129	12
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.4	7.8	8.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	92%	0%	40%
Vol Thru, %	0%	20%	60%
Vol Right, %	8%	80%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	120	100	50
LT Vol	110	0	20
Through Vol	0	20	30
RT Vol	10	80	0
Lane Flow Rate	141	118	59
Geometry Grp	1	1	1
Degree of Util (X)	0.172	0.127	0.073
Departure Headway (Hd)	4.388	3.873	4.482
Convergence, Y/N	Yes	Yes	Yes
Cap	808	931	804
Service Time	2.469	1.875	2.486
HCM Lane V/C Ratio	0.175	0.127	0.073
HCM Control Delay	8.4	7.4	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.4	0.2

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	210	390	90	100	30
Future Vol, veh/h	10	210	390	90	100	30
Conflicting Peds, #/hr	4	0	0	4	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	236	438	101	112	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	543	0	-	0	751	494
Stage 1	-	-	-	-	493	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1021	-	-	-	377	573
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1017	-	-	-	369	570
Mov Cap-2 Maneuver	-	-	-	-	369	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	780	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1017	-	-	-	402
HCM Lane V/C Ratio	0.011	-	-	-	0.363
HCM Control Delay (s)	8.6	0	-	-	19
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.6

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	180	120	90	320	10	120	0	50	10	10	20
Future Vol, veh/h	20	180	120	90	320	10	120	0	50	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	205	136	102	364	11	136	0	57	11	11	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	375	0	0	341	0	0	910	898	273	922	961	370
Stage 1	-	-	-	-	-	-	319	319	-	574	574	-
Stage 2	-	-	-	-	-	-	591	579	-	348	387	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1178	-	-	1213	-	-	254	278	763	250	255	673
Stage 1	-	-	-	-	-	-	690	651	-	502	502	-
Stage 2	-	-	-	-	-	-	492	499	-	666	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1213	-	-	218	250	763	213	229	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	250	-	213	229	-
Stage 1	-	-	-	-	-	-	676	638	-	492	460	-
Stage 2	-	-	-	-	-	-	425	457	-	604	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.8	35.2	17.6
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	763	1178	-	-	1213	-	-	332
HCM Lane V/C Ratio	0.626	0.074	0.019	-	-	0.084	-	-	0.137
HCM Control Delay (s)	45.6	10.1	8.1	-	-	8.2	-	-	17.6
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.7	0.2	0.1	-	-	0.3	-	-	0.5

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	20	30	560	630	30
Future Vol, veh/h	20	20	30	560	630	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	21	21	31	583	656	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1317	672	687	0	-	0
Stage 1	672	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	173	454	902	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	164	454	902	-	-	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	480	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	902	-	241	-	-
HCM Lane V/C Ratio	0.035	-	0.173	-	-
HCM Control Delay (s)	9.1	0	23	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	580	40	10	640
Future Vol, veh/h	30	10	580	40	10	640
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	10	598	41	10	660

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1278	598	0	0	639	0
Stage 1	598	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	183	500	-	-	940	-
Stage 1	547	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	500	-	-	940	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	349	940	-
HCM Lane V/C Ratio	-	-	0.118	0.011	-
HCM Control Delay (s)	-	-	16.7	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	35.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	100	220	480	450	220
Future Vol, veh/h	140	100	220	480	450	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	146	104	229	500	469	229

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1427	469	698	0	-	0
Stage 1	469	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	148	592	894	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 110	592	894	-	-	-
Mov Cap-2 Maneuver	~ 127	-	-	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	225.6	3.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	894	-	189	-	-
HCM Lane V/C Ratio	0.256	-	1.323	-	-
HCM Control Delay (s)	10.4	-	225.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	1	-	14.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	0	770	10	10	880	10
Future Vol, veh/h	0	0	0	0	0	10	0	770	10	10	880	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	10	0	786	10	10	898	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1719	1719	903	1714	1719	791	-	0	0	796	0	0
Stage 1	923	923	-	791	791	-	-	-	-	-	-	-
Stage 2	796	796	-	923	928	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	-	-	-	2.227	-	-
Pot Cap-1 Maneuver	70	89	334	71	89	388	0	-	-	821	-	-
Stage 1	322	347	-	381	400	-	0	-	-	-	-	-
Stage 2	379	398	-	322	345	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	88	334	70	88	388	-	-	-	821	-	-
Mov Cap-2 Maneuver	186	206	-	190	208	-	-	-	-	-	-	-
Stage 1	322	343	-	381	400	-	-	-	-	-	-	-
Stage 2	369	398	-	318	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.5	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	388	821	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.012	-	-
HCM Control Delay (s)	-	-	0	14.5	9.4	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-	-

HCM 2010 TWSC
1: Spring Mountain Rd & Elmhurst Ave

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	10	40	0	30	10	70	50	50	100	10
Future Vol, veh/h	0	0	10	40	0	30	10	70	50	50	100	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	13	53	0	39	13	92	66	66	132	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	442	455	139	428	428	125	145	0	0	158	0	0
Stage 1	271	271	-	151	151	-	-	-	-	-	-	-
Stage 2	171	184	-	277	277	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	524	500	907	535	518	923	1431	-	-	1416	-	-
Stage 1	733	683	-	849	770	-	-	-	-	-	-	-
Stage 2	829	746	-	727	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	478	470	907	503	487	923	1431	-	-	1416	-	-
Mov Cap-2 Maneuver	478	470	-	503	487	-	-	-	-	-	-	-
Stage 1	726	648	-	841	762	-	-	-	-	-	-	-
Stage 2	786	739	-	680	644	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	11.8	0.6	2.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	907	625	1416	-	-
HCM Lane V/C Ratio	0.009	-	-	0.015	0.147	0.046	-	-
HCM Control Delay (s)	7.5	0	-	9	11.8	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	110	10	10	100	10	10	10	10	10	10	20
Future Vol, veh/h	30	110	10	10	100	10	10	10	10	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	134	12	12	122	12	12	12	12	12	12	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	146	0	0	384	372	140	378	372	128
Stage 1	-	-	-	-	-	-	214	214	-	152	152	-
Stage 2	-	-	-	-	-	-	170	158	-	226	220	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1444	-	-	1430	-	-	572	557	905	578	557	919
Stage 1	-	-	-	-	-	-	786	724	-	848	770	-
Stage 2	-	-	-	-	-	-	830	765	-	774	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1444	-	-	1430	-	-	532	536	905	544	536	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	532	536	-	544	536	-
Stage 1	-	-	-	-	-	-	764	704	-	824	763	-
Stage 2	-	-	-	-	-	-	788	758	-	729	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.6	11.2	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	619	1444	-	-	1430	-	-	680
HCM Lane V/C Ratio	0.059	0.025	-	-	0.009	-	-	0.072
HCM Control Delay (s)	11.2	7.6	0	-	7.5	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	110	80	40	90	50
Future Vol, veh/h	70	110	80	40	90	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	100	157	114	57	129	71

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	500	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1400	-	-	-	529	902
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	706	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1400	-	-	-	488	902
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1400	-	-	-	584
HCM Lane V/C Ratio	0.071	-	-	-	0.342
HCM Control Delay (s)	7.8	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.5

HCM 2010 TWSC
4: Hudson Ave & Madrona Ave

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	10	70	20	10	60
Future Vol, veh/h	30	10	70	20	10	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	35	12	81	23	12	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	226	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1554	-	760	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	720	1027
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	844	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	968	-	-	1554	-
HCM Lane V/C Ratio	0.084	-	-	0.052	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

HCM 2010 TWSC
5: Valley View St & Spring St

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Intersection	
Int Delay, s/veh	7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	40	90	50	40	190
Future Vol, veh/h	60	40	90	50	40	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	81	54	122	68	54	257

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	135	0	420	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1443	-	588	943
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	740	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	536	943
Mov Cap-2 Maneuver	-	-	-	-	536	-
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	740	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	833	-	-	1443	-
HCM Lane V/C Ratio	0.373	-	-	0.084	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.3	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	90	150	30	70	90
Future Vol, veh/h	10	90	150	30	70	90
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	122	203	41	95	122
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	9.3	9.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	44%
Vol Thru, %	83%	0%	56%
Vol Right, %	17%	90%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	180	100	160
LT Vol	0	10	70
Through Vol	150	0	90
RT Vol	30	90	0
Lane Flow Rate	243	135	216
Geometry Grp	1	1	1
Degree of Util (X)	0.298	0.167	0.277
Departure Headway (Hd)	4.403	4.46	4.61
Convergence, Y/N	Yes	Yes	Yes
Cap	817	803	778
Service Time	2.43	2.493	2.638
HCM Lane V/C Ratio	0.297	0.168	0.278
HCM Control Delay	9.3	8.4	9.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.6	1.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	40	30	130	70	20
Future Vol, veh/h	30	40	30	130	70	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	50	38	163	88	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	201	0	-	0	246	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1365	-	-	-	740	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1365	-	-	-	719	929
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	897	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1365	-	-	-	757
HCM Lane V/C Ratio	0.027	-	-	-	0.149
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Int Delay, s/veh	34.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	10	50	10	60	10	940	40	30	680	10
Future Vol, veh/h	10	10	10	50	10	60	10	940	40	30	680	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	11	11	56	11	67	11	1044	44	33	756	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1955	1938	762	1927	1921	1066	767	0	0	1088	0	0
Stage 1	828	828	-	1088	1088	-	-	-	-	-	-	-
Stage 2	1127	1110	-	839	833	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	48	65	403	~ 50	67	269	842	-	-	638	-	-
Stage 1	364	384	-	260	291	-	-	-	-	-	-	-
Stage 2	247	284	-	359	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	30	61	403	~ 40	63	269	842	-	-	638	-	-
Mov Cap-2 Maneuver	30	61	-	~ 40	63	-	-	-	-	-	-	-
Stage 1	359	364	-	257	287	-	-	-	-	-	-	-
Stage 2	176	280	-	321	362	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	133.9	$ 502.4	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	842	-	-	57	74	638	-	-
HCM Lane V/C Ratio	0.013	-	-	0.585	1.802	0.052	-	-
HCM Control Delay (s)	9.3	-	-	133.9	$ 502.4	11	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.4	11.7	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	40	30	920	700	40
Future Vol, veh/h	70	40	30	920	700	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	44	33	1022	778	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1888	800	822	0	-	0
Stage 1	800	-	-	-	-	-
Stage 2	1088	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	~ 77	383	803	-	-	-
Stage 1	441	-	-	-	-	-
Stage 2	322	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 70	383	803	-	-	-
Mov Cap-2 Maneuver	~ 70	-	-	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	240.3	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	803	-	100	-	-
HCM Lane V/C Ratio	0.042	-	1.222	-	-
HCM Control Delay (s)	9.7	0	240.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	8.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	50	20	20	50	180	30	650	20	80	600	60
Future Volume (veh/h)	120	50	20	20	50	180	30	650	20	80	600	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1324	1863	1350
Adj Flow Rate, veh/h	122	51	20	20	51	184	31	663	20	82	612	61
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	83	25	67	85	258	443	836	25	248	1090	109
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	646	392	120	70	400	1218	762	1278	39	536	1667	166
Grp Volume(v), veh/h	193	0	0	255	0	0	31	0	683	82	0	673
Grp Sat Flow(s),veh/h/ln	1157	0	0	1687	0	0	762	0	1317	536	0	1833
Q Serve(g_s), s	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	27.5	9.6	0.0	14.8
Cycle Q Clear(g_c), s	12.2	0.0	0.0	10.3	0.0	0.0	16.5	0.0	27.5	37.1	0.0	14.8
Prop In Lane	0.63		0.10	0.08		0.72	1.00		0.03	1.00		0.09
Lane Grp Cap(c), veh/h	325	0	0	410	0	0	443	0	861	248	0	1199
V/C Ratio(X)	0.59	0.00	0.00	0.62	0.00	0.00	0.07	0.00	0.79	0.33	0.00	0.56
Avail Cap(c_a), veh/h	561	0	0	698	0	0	688	0	1284	420	0	1787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	0.0	27.1	0.0	0.0	11.5	0.0	9.2	22.5	0.0	7.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	1.1	0.0	0.0	0.1	0.0	2.7	1.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	4.9	0.0	0.0	0.4	0.0	10.5	1.5	0.0	7.5
LnGrp Delay(d),s/veh	28.9	0.0	0.0	28.3	0.0	0.0	11.6	0.0	11.9	23.6	0.0	7.6
LnGrp LOS	C			C			B		B	C		A
Approach Vol, veh/h		193			255			714			755	
Approach Delay, s/veh		28.9			28.3			11.9			9.3	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.0		20.8		53.0		20.8
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		29.5		14.2		39.1		12.3
Green Ext Time (p_c), s		9.4		0.9		9.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	110	10	30	210	10
Future Vol, veh/h	30	110	10	30	210	10
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	133	12	36	253	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	171	0	165	106
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1406	-	826	948
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	817	945
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	822	-	-	1403	-
HCM Lane V/C Ratio	0.322	-	-	0.009	-
HCM Control Delay (s)	11.5	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	100	30	70	80	70	40	550	40	80	520	40
Future Volume (veh/h)	80	100	30	70	80	70	40	550	40	80	520	40
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.87	0.97		0.84	1.00		0.90	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	82	103	31	72	82	72	41	567	41	82	536	41
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	184	48	145	147	108	121	608	44	170	642	49
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.07	0.50	0.50	0.10	0.53	0.53
Sat Flow, veh/h	453	834	216	382	665	489	1774	1210	87	1774	1209	92
Grp Volume(v), veh/h	216	0	0	226	0	0	41	0	608	82	0	577
Grp Sat Flow(s),veh/h/ln	1503	0	0	1536	0	0	1774	0	1297	1774	0	1302
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	1.7	0.0	34.2	3.4	0.0	29.1
Cycle Q Clear(g_c), s	9.9	0.0	0.0	9.9	0.0	0.0	1.7	0.0	34.2	3.4	0.0	29.1
Prop In Lane	0.38		0.14	0.32		0.32	1.00		0.07	1.00		0.07
Lane Grp Cap(c), veh/h	395	0	0	399	0	0	121	0	652	170	0	691
V/C Ratio(X)	0.55	0.00	0.00	0.57	0.00	0.00	0.34	0.00	0.93	0.48	0.00	0.84
Avail Cap(c_a), veh/h	522	0	0	526	0	0	364	0	999	364	0	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	27.5	0.0	0.0	34.6	0.0	18.1	33.4	0.0	15.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.6	0.0	8.4	0.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.0	4.4	0.0	0.0	0.9	0.0	13.7	1.7	0.0	10.8
LnGrp Delay(d),s/veh	27.8	0.0	0.0	28.0	0.0	0.0	35.2	0.0	26.5	34.2	0.0	18.2
LnGrp LOS	C			C			D		C	C		B
Approach Vol, veh/h		216			226			649			659	
Approach Delay, s/veh		27.8			28.0			27.0			20.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	46.0		21.9	12.2	43.9		21.9
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	3.7	31.1		11.9	5.4	36.2		11.9
Green Ext Time (p_c), s	0.0	2.9		0.5	0.0	3.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	130	90	60	150	100	60	90	30	60	80	30
Future Vol, veh/h	20	130	90	60	150	100	60	90	30	60	80	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	137	95	63	158	105	63	95	32	63	84	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.6	13.1	11.4	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	8%	19%	35%
Vol Thru, %	50%	54%	48%	47%
Vol Right, %	17%	38%	32%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	240	310	170
LT Vol	60	20	60	60
Through Vol	90	130	150	80
RT Vol	30	90	100	30
Lane Flow Rate	189	253	326	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.304	0.374	0.477	0.288
Departure Headway (Hd)	5.78	5.327	5.264	5.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	620	672	682	617
Service Time	3.842	3.383	3.317	3.862
HCM Lane V/C Ratio	0.305	0.376	0.478	0.29
HCM Control Delay	11.4	11.6	13.1	11.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.3	1.7	2.6	1.2

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	50	10	0	90	0	40	0	10	10	10	50
Future Vol, veh/h	70	50	10	0	90	0	40	0	10	10	10	50
Conflicting Peds, #/hr	4	0	8	8	0	4	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	62	12	0	111	0	49	0	12	12	12	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	115	0	0	82	0	0	400	363	82	367	369	119
Stage 1	-	-	-	-	-	-	248	248	-	115	115	-
Stage 2	-	-	-	-	-	-	152	115	-	252	254	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1474	-	-	1515	-	-	560	565	978	589	560	933
Stage 1	-	-	-	-	-	-	756	701	-	890	800	-
Stage 2	-	-	-	-	-	-	850	800	-	752	697	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1468	-	-	1503	-	-	484	524	965	549	520	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	524	-	549	520	-
Stage 1	-	-	-	-	-	-	705	653	-	832	797	-
Stage 2	-	-	-	-	-	-	778	797	-	693	649	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.1	0	12.6	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1468	-	-	1503	-	-	766
HCM Lane V/C Ratio	0.115	0.059	-	-	-	-	-	0.113
HCM Control Delay (s)	12.6	7.6	0	-	0	-	-	10.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	30	600	80	30	590
Future Vol, veh/h	60	30	600	80	30	590
Conflicting Peds, #/hr	12	12	0	1	54	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	32	632	84	32	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1425	740	0	0	770	0
Stage 1	728	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	149	417	-	-	844	-
Stage 1	478	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	391	-	-	801	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	489	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	801	-
HCM Lane V/C Ratio	-	-	0.319	0.039	-
HCM Control Delay (s)	-	-	22.7	9.7	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	80	10	10	50	140	10	10	10	190	10	20
Future Vol, veh/h	30	80	10	10	50	140	10	10	10	190	10	20
Conflicting Peds, #/hr	31	0	1	1	0	31	7	0	5	5	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	91	11	11	57	159	11	11	11	216	11	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	103	0	0	349	435	103	371	361	175
Stage 1	-	-	-	-	-	-	166	166	-	190	190	-
Stage 2	-	-	-	-	-	-	183	269	-	181	171	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1319	-	-	1489	-	-	606	514	952	586	566	868
Stage 1	-	-	-	-	-	-	836	761	-	812	743	-
Stage 2	-	-	-	-	-	-	819	687	-	821	757	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1280	-	-	1488	-	-	559	480	947	534	528	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	559	480	-	534	528	-
Stage 1	-	-	-	-	-	-	812	739	-	766	714	-
Stage 2	-	-	-	-	-	-	772	660	-	773	735	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.4	11.3	16.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1280	-	-	1488	-	-	552
HCM Lane V/C Ratio	0.056	0.027	-	-	0.008	-	-	0.453
HCM Control Delay (s)	11.3	7.9	0	-	7.4	0	-	16.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.3

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	30	70	0	50	70	30	50	0	120	30	20
Future Vol, veh/h	20	30	70	0	50	70	30	50	0	120	30	20
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	24	36	84	0	60	84	36	60	0	145	36	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.6	8.8	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	17%	0%	71%
Vol Thru, %	62%	25%	42%	18%
Vol Right, %	0%	58%	58%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	120	120	170
LT Vol	30	20	0	120
Through Vol	50	30	50	30
RT Vol	0	70	70	20
Lane Flow Rate	96	145	145	205
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.183	0.181	0.273
Departure Headway (Hd)	4.942	4.545	4.514	4.8
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	787	792	746
Service Time	2.997	2.59	2.558	2.848
HCM Lane V/C Ratio	0.133	0.184	0.183	0.275
HCM Control Delay	8.8	8.6	8.6	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.7	0.7	1.1

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	180	160	30	120	75	535	70	110	500	10
Future Volume (veh/h)	0	0	180	160	30	120	75	535	70	110	500	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.94	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1324	1350	1863	1324	1350
Adj Flow Rate, veh/h	0	0	191	170	32	128	80	569	74	117	532	11
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	102	165	195	37	191	99	748	31	137	794	16
Arrive On Green	0.00	0.00	0.07	0.14	0.14	0.14	0.07	0.52	0.52	0.08	0.53	0.53
Sat Flow, veh/h	0	1863	1450	1504	283	1482	1774	1140	148	1774	1291	27
Grp Volume(v), veh/h	0	0	191	202	0	128	80	0	643	117	0	543
Grp Sat Flow(s),veh/h/ln	0	1863	1450	1788	0	1482	1774	0	1289	1774	0	1317
Q Serve(g_s), s	0.0	0.0	9.0	13.9	0.0	10.3	5.6	0.0	60.5	8.2	0.0	41.5
Cycle Q Clear(g_c), s	0.0	0.0	9.0	13.9	0.0	10.3	5.6	0.0	60.5	8.2	0.0	41.5
Prop In Lane	0.00		1.00	0.84		1.00	1.00		0.12	1.00		0.02
Lane Grp Cap(c), veh/h	0	102	165	231	0	191	99	0	779	137	0	811
V/C Ratio(X)	0.00	0.00	1.16	0.87	0.00	0.67	0.81	0.00	0.83	0.85	0.00	0.67
Avail Cap(c_a), veh/h	0	132	209	357	0	296	242	0	992	242	0	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	73.4	70.2	0.0	68.2	76.8	0.0	33.4	74.9	0.0	20.7
Incr Delay (d2), s/veh	0.0	0.0	112.8	9.3	0.0	1.5	5.9	0.0	3.7	5.6	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	152.7	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	12.7	9.6	0.0	5.6	3.8	0.0	68.9	5.5	0.0	16.2
LnGrp Delay(d),s/veh	0.0	0.0	186.2	79.5	0.0	69.7	82.7	0.0	189.8	80.6	0.0	21.5
LnGrp LOS			F	E		E	F		F	F		C
Approach Vol, veh/h		191			330			723			660	
Approach Delay, s/veh		186.2			75.7			178.0			32.0	
Approach LOS		F			E			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	75.3		25.6	13.8	73.7		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	17.3	* 95		* 25	17.3	* 98		9.0
Max Q Clear Time (g_c+I1), s	11.6	43.5		15.9	10.2	62.5		11.0
Green Ext Time (p_c), s	0.1	2.7		0.8	0.1	3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.5
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: 2040 GP Buildout + Oak Extn
Time Period: PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	200	150	670	700	60
Future Volume (veh/h)	70	200	150	670	700	60
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	71	202	152	677	707	61
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	73	208	176	986	734	63
Arrive On Green	0.17	0.17	0.10	0.75	0.62	0.62
Sat Flow, veh/h	418	1190	1757	1311	1190	103
Grp Volume(v), veh/h	274	0	152	677	0	768
Grp Sat Flow(s),veh/h/ln	1614	0	1757	1311	0	1293
Q Serve(g_s), s	22.5	0.0	11.4	35.4	0.0	74.9
Cycle Q Clear(g_c), s	22.5	0.0	11.4	35.4	0.0	74.9
Prop In Lane	0.26	0.74	1.00			0.08
Lane Grp Cap(c), veh/h	282	0	176	986	0	797
V/C Ratio(X)	0.97	0.00	0.87	0.69	0.00	0.96
Avail Cap(c_a), veh/h	282	0	201	1148	0	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	0.0	59.2	8.5	0.0	24.1
Incr Delay (d2), s/veh	45.7	0.0	25.5	1.4	0.0	19.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.6	0.0	6.8	13.0	0.0	30.8
LnGrp Delay(d),s/veh	100.5	0.0	84.6	9.9	0.0	43.6
LnGrp LOS	F		F	A		D
Approach Vol, veh/h	274			829	768	
Approach Delay, s/veh	100.5			23.6	43.6	
Approach LOS	F			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	28.0	87.4				105.5		28.0
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	23.3	96.9				116.9		23.3
Max Q Clear Time (g_c+I1), s	24.5	76.9				37.4		24.5
Green Ext Time (p_c), s	0.0	5.4				5.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.1
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	70	110	710	870	50
Future Vol, veh/h	30	70	110	710	870	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	76	120	772	946	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1985	973	1000	0	-	0
Stage 1	973	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	67	305	688	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	55	305	688	-	-	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.7	1.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	688	-	144	305	-	-
HCM Lane V/C Ratio	0.174	-	0.226	0.249	-	-
HCM Control Delay (s)	11.3	-	37.2	20.7	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.6	-	0.8	1	-	-

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	100	10	20	90	10
Future Vol, veh/h	20	100	10	20	90	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	114	11	23	102	11
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.3	7.6	8.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	90%	0%	33%
Vol Thru, %	0%	17%	67%
Vol Right, %	10%	83%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	120	30
LT Vol	90	0	10
Through Vol	0	20	20
RT Vol	10	100	0
Lane Flow Rate	114	136	34
Geometry Grp	1	1	1
Degree of Util (X)	0.137	0.139	0.041
Departure Headway (Hd)	4.347	3.658	4.306
Convergence, Y/N	Yes	Yes	Yes
Cap	819	965	820
Service Time	2.402	1.739	2.395
HCM Lane V/C Ratio	0.139	0.141	0.041
HCM Control Delay	8.1	7.3	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.5	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	260	300	80	110	20
Future Vol, veh/h	30	260	300	80	110	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	283	326	87	120	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	413	0	-	0	719	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	349	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	395	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	714	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	382	676
Mov Cap-2 Maneuver	-	-	-	-	382	-
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	409
HCM Lane V/C Ratio	0.028	-	-	-	0.345
HCM Control Delay (s)	8.2	0	-	-	18.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	300	40	20	300	10	40	0	30	10	0	20
Future Vol, veh/h	40	300	40	20	300	10	40	0	30	10	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	85	-	-	90	-	-	110	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	309	41	21	309	10	41	0	31	10	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	350	0	0	779	773	330	783	788	314
Stage 1	-	-	-	-	-	-	412	412	-	356	356	-
Stage 2	-	-	-	-	-	-	367	361	-	427	432	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1241	-	-	1209	-	-	313	330	712	311	323	726
Stage 1	-	-	-	-	-	-	617	594	-	661	629	-
Stage 2	-	-	-	-	-	-	653	626	-	606	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1241	-	-	1209	-	-	293	314	712	286	307	726
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	314	-	286	307	-
Stage 1	-	-	-	-	-	-	597	574	-	639	618	-
Stage 2	-	-	-	-	-	-	623	615	-	561	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.5	15.4	13
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	712	1241	-	-	1209	-	-	480
HCM Lane V/C Ratio	0.141	0.043	0.033	-	-	0.017	-	-	0.064
HCM Control Delay (s)	19.3	10.3	8	-	-	8	-	-	13
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	0.1	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	30	30	620	780	30
Future Vol, veh/h	30	30	30	620	780	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	32	32	667	839	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1586	855	871	0	-	0
Stage 1	855	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	118	356	770	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	110	356	770	-	-	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	388	-	-	-	-	-
Stage 2	475	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.2	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	770	-	168	-	-
HCM Lane V/C Ratio	0.042	-	0.384	-	-
HCM Control Delay (s)	9.9	0	39.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	10	640	20	10	800
Future Vol, veh/h	50	10	640	20	10	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	11	688	22	11	860

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1570	688	0	0	710	0
Stage 1	688	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	122	446	-	-	889	-
Stage 1	499	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	121	446	-	-	889	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	405	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	274	889	-
HCM Lane V/C Ratio	-	-	0.235	0.012	-
HCM Control Delay (s)	-	-	22.1	9.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0	-

Intersection	
Int Delay, s/veh	28.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	200	130	530	620	230
Future Vol, veh/h	130	200	130	530	620	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	141	217	141	576	674	250

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1532	674	924	0	-	0
Stage 1	674	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 128	455	739	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 104	455	739	-	-	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	155.9	2.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	739	-	298	-	-
HCM Lane V/C Ratio	0.191	-	1.204	-	-
HCM Control Delay (s)	11	-	155.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.7	-	16	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	10	20	10	730	0	10	750	20
Future Vol, veh/h	0	0	0	10	10	20	10	730	0	10	750	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	11	10	20	10	745	0	10	765	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1575	1560	775	1560	1570	745	785	0	0	745	0	0
Stage 1	795	795	-	765	765	-	-	-	-	-	-	-
Stage 2	780	765	-	795	805	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	89	112	396	91	110	412	829	-	-	858	-	-
Stage 1	379	398	-	394	411	-	-	-	-	-	-	-
Stage 2	387	411	-	379	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	108	396	89	106	412	829	-	-	858	-	-
Mov Cap-2 Maneuver	76	108	-	89	106	-	-	-	-	-	-	-
Stage 1	371	393	-	386	402	-	-	-	-	-	-	-
Stage 2	351	402	-	375	389	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	36.5	0.1	0.1
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	829	-	-	-	155	858	-	-
HCM Lane V/C Ratio	0.012	-	-	-	0.268	0.012	-	-
HCM Control Delay (s)	9.4	-	-	0	36.5	9.2	-	-
HCM Lane LOS	A	-	-	A	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1	0	-	-

HCM 2010 TWSC
8: Main St & Pratt Ave

Scenario: 2040 GP Buildout + Oak Extn
Time Period: Saturday Peak Ho

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	10	10	10	30	10	700	20	20	730	10
Future Vol, veh/h	10	0	10	10	10	30	10	700	20	20	730	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	97	92	97	92	97	97	97	97	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	0	11	10	11	31	11	722	21	21	753	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1577	1566	759	1561	1561	733	764	0	0	743	0	0
Stage 1	801	801	-	755	755	-	-	-	-	-	-	-
Stage 2	776	765	-	806	806	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	88	111	405	91	111	419	844	-	-	860	-	-
Stage 1	377	395	-	399	415	-	-	-	-	-	-	-
Stage 2	389	411	-	374	393	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	107	405	86	107	419	844	-	-	860	-	-
Mov Cap-2 Maneuver	73	107	-	86	107	-	-	-	-	-	-	-
Stage 1	372	386	-	394	410	-	-	-	-	-	-	-
Stage 2	346	406	-	355	384	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	40.1	33.8	0.1	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	844	-	-	124	176	860	-	-
HCM Lane V/C Ratio	0.013	-	-	0.175	0.296	0.024	-	-
HCM Control Delay (s)	9.3	-	-	40.1	33.8	9.3	-	-
HCM Lane LOS	A	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	20	30	700	710	40
Future Vol, veh/h	30	20	30	700	710	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	21	31	729	740	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1552	761	782	0	-	0
Stage 1	761	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	124	404	831	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	116	404	831	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.4	0.4	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	831	-	162	-	-
HCM Lane V/C Ratio	0.038	-	0.322	-	-
HCM Control Delay (s)	9.5	0	37.4	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

HCM 2010 Signalized Intersection Summary
10: Main St & Madrona Ave/Fulton Ln

Scenario: 2040 GP Buildout + Oak Extn
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	30	40	20	20	80	20	570	10	60	590	80
Future Volume (veh/h)	80	30	40	20	20	80	20	570	10	60	590	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	25	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	82	31	41	21	21	82	21	588	10	62	608	82
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	199	68	64	93	61	166	227	874	15	451	798	79
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	690	458	416	148	386	1042	743	1285	22	808	1129	152
Grp Volume(v), veh/h	154	0	0	124	0	0	21	0	598	62	0	690
Grp Sat Flow(s),veh/h/ln	1564	0	0	1576	0	0	743	0	1307	808	0	1282
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	1.2	0.0	15.6	2.8	0.0	21.6
Cycle Q Clear(g_c), s	4.2	0.0	0.0	3.6	0.0	0.0	22.7	0.0	15.6	18.4	0.0	21.6
Prop In Lane	0.53		0.27	0.17		0.66	1.00		0.02	1.00		0.12
Lane Grp Cap(c), veh/h	332	0	0	320	0	0	227	0	889	451	0	877
V/C Ratio(X)	0.46	0.00	0.00	0.39	0.00	0.00	0.09	0.00	0.67	0.14	0.00	0.79
Avail Cap(c_a), veh/h	930	0	0	947	0	0	868	0	1828	1026	0	1793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	0.0	25.7	0.0	0.0	26.6	0.0	5.8	11.5	0.0	8.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	0.2	0.0	1.3	0.2	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	2.1	0.0	0.0	0.4	0.0	6.2	0.7	0.0	20.5
LnGrp Delay(d),s/veh	27.0	0.0	0.0	26.3	0.0	0.0	26.9	0.0	7.0	11.7	0.0	38.4
LnGrp LOS	C			C			C		A	B		D
Approach Vol, veh/h		154			124			619			752	
Approach Delay, s/veh		27.0			26.3			7.7			36.2	
Approach LOS		C			C			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		37.7		13.8		37.7		13.8
Change Period (Y+Rc), s		* 4.7		* 5.2		* 4.7		* 5.2
Max Green Setting (Gmax), s		* 72		* 29		* 72		* 29
Max Q Clear Time (g_c+I1), s		24.7		6.2		23.6		5.6
Green Ext Time (p_c), s		7.8		0.8		9.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
12: Main St & Adams St

Scenario: 2040 GP Buildout + Oak Extn
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	60	30	50	40	50	30	520	30	50	580	20
Future Volume (veh/h)	40	60	30	50	40	50	30	520	30	50	580	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	20	0
Ped-Bike Adj(A_pbT)	0.75		0.65	0.74		0.66	1.00		0.91	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	41	62	31	52	41	52	31	536	31	52	598	21
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	169	73	137	101	102	95	652	38	128	705	16
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.06	0.49	0.49	0.08	0.51	0.51
Sat Flow, veh/h	315	730	314	356	438	444	1757	1220	71	1757	1254	44
Grp Volume(v), veh/h	134	0	0	145	0	0	31	0	567	52	0	619
Grp Sat Flow(s),veh/h/ln	1359	0	0	1237	0	0	1757	0	1290	1757	0	1298
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	32.2	2.3	0.0	35.9
Cycle Q Clear(g_c), s	5.6	0.0	0.0	6.7	0.0	0.0	1.4	0.0	32.2	2.3	0.0	35.9
Prop In Lane	0.31		0.23	0.36		0.36	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	367	0	0	341	0	0	95	0	690	128	0	720
V/C Ratio(X)	0.37	0.00	0.00	0.43	0.00	0.00	0.33	0.00	0.82	0.41	0.00	0.86
Avail Cap(c_a), veh/h	461	0	0	427	0	0	350	0	965	350	0	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	29.6	0.0	0.0	41.0	0.0	17.2	39.9	0.0	19.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.7	0.0	2.8	0.8	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	3.1	0.0	0.0	0.8	0.0	12.0	1.3	0.0	25.8
LnGrp Delay(d),s/veh	29.4	0.0	0.0	29.9	0.0	0.0	41.8	0.0	20.0	40.7	0.0	63.4
LnGrp LOS	C			C			D		C	D		E
Approach Vol, veh/h		134			145			598			671	
Approach Delay, s/veh		29.4			29.9			21.2			61.6	
Approach LOS		C			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	45.6		25.5	10.9	43.9		25.5
Change Period (Y+Rc), s	* 4.7	* 4.7		* 4.7	* 4.7	* 4.7		* 4.7
Max Green Setting (Gmax), s	* 16	* 60		* 24	* 16	* 60		* 24
Max Q Clear Time (g_c+I1), s	13.4	37.9		8.7	4.3	34.2		7.6
Green Ext Time (p_c), s	0.0	3.0		0.4	0.0	2.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	30	550	70	20	640
Future Vol, veh/h	40	30	550	70	20	640
Conflicting Peds, #/hr	39	71	0	169	169	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	85	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	31	573	73	21	667

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1527	850	0	0	815	0
Stage 1	779	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	129	359	-	-	808	-
Stage 1	451	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	281	-	-	678	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	449	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	247	678	-
HCM Lane V/C Ratio	-	-	0.295	0.031	-
HCM Control Delay (s)	-	-	25.6	10.5	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	30	60	0	30	50	30	50	0	85	35	10
Future Vol, veh/h	10	30	60	0	30	50	30	50	0	85	35	10
Peak Hour Factor	0.87	0.87	0.92	0.92	0.87	0.87	0.92	0.92	0.92	0.87	0.92	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	34	65	0	34	57	33	54	0	98	38	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.8	8.3	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	10%	0%	65%
Vol Thru, %	62%	30%	38%	27%
Vol Right, %	0%	60%	62%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	100	80	130
LT Vol	30	10	0	85
Through Vol	50	30	30	35
RT Vol	0	60	50	10
Lane Flow Rate	87	111	92	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.112	0.132	0.109	0.187
Departure Headway (Hd)	4.641	4.268	4.254	4.581
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	842	843	783
Service Time	2.667	2.288	2.275	2.605
HCM Lane V/C Ratio	0.113	0.132	0.109	0.188
HCM Control Delay	8.3	7.9	7.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.4	0.7

HCM 2010 Signalized Intersection Summary
18: Main St & Mitchell Dr/Pope Street

Scenario: 2040 GP Buildout + Oak Extn
Time Period: Saturday Peak Ho

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	125	130	40	80	35	515	60	70	565	10
Future Volume (veh/h)	0	0	125	130	40	80	35	515	60	70	565	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		0.48	1.00		0.73	1.00		0.91	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1845	1311	1350	1845	1311	1350
Adj Flow Rate, veh/h	0	0	128	133	41	82	36	526	61	71	577	10
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	108	106	194	60	151	80	728	29	97	777	8
Arrive On Green	0.00	0.00	0.07	0.17	0.17	0.17	0.05	0.48	0.48	0.07	0.50	0.50
Sat Flow, veh/h	0	1845	757	1358	419	1144	1757	1139	132	1757	1283	22
Grp Volume(v), veh/h	0	0	128	174	0	82	36	0	587	71	0	587
Grp Sat Flow(s),veh/h/ln	0	1845	757	1777	0	1144	1757	0	1271	1757	0	1305
Q Serve(g_s), s	0.0	0.0	9.0	10.8	0.0	7.7	2.4	0.0	53.1	4.7	0.0	49.1
Cycle Q Clear(g_c), s	0.0	0.0	9.0	10.8	0.0	7.7	2.4	0.0	53.1	4.7	0.0	49.1
Prop In Lane	0.00		1.00	0.76		1.00	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	0	108	106	254	0	151	80	0	789	97	0	724
V/C Ratio(X)	0.00	0.00	1.21	0.68	0.00	0.54	0.45	0.00	0.74	0.73	0.00	0.81
Avail Cap(c_a), veh/h	0	138	139	374	0	241	180	0	1086	180	0	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	76.7	64.1	0.0	62.8	73.0	0.0	31.8	73.0	0.0	29.0
Incr Delay (d2), s/veh	0.0	0.0	148.1	3.2	0.0	3.0	1.5	0.0	1.0	3.9	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113.1	0.0	0.0	45.4
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.2	7.4	0.0	3.4	1.6	0.0	60.3	3.1	0.0	35.7
LnGrp Delay(d),s/veh	0.0	0.0	224.9	67.4	0.0	65.8	74.4	0.0	145.9	76.9	0.0	76.0
LnGrp LOS			F	E		E	E		F	E		E
Approach Vol, veh/h		128			256			623			658	
Approach Delay, s/veh		224.9			66.8			141.8			76.1	
Approach LOS		F			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	67.7		28.7	11.9	65.9		13.7
Change Period (Y+Rc), s	3.7	* 7.7		* 7.7	3.7	* 7.7		4.7
Max Green Setting (Gmax), s	12.3	* 1E2		* 25	12.3	* 1E2		9.0
Max Q Clear Time (g_c+I1), s	11.4	51.1		12.8	6.7	55.1		11.0
Green Ext Time (p_c), s	0.0	3.0		1.1	0.0	3.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.7
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
19: Main St & Grayson Avenue

Scenario: 2040 GP Buildout + Oak Extn
Time Period: Saturday Peak Ho

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	170	120	620	760	30
Future Volume (veh/h)	30	170	120	620	760	30
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	30	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1845	1311	1311	1350
Adj Flow Rate, veh/h	30	172	121	626	768	30
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	3	3	3	3
Cap, veh/h	34	196	151	994	785	31
Arrive On Green	0.15	0.15	0.09	0.76	0.63	0.63
Sat Flow, veh/h	236	1351	1757	1311	1253	49
Grp Volume(v), veh/h	203	0	121	626	0	798
Grp Sat Flow(s),veh/h/ln	1594	0	1757	1311	0	1302
Q Serve(g_s), s	12.7	0.0	6.9	22.4	0.0	60.1
Cycle Q Clear(g_c), s	12.7	0.0	6.9	22.4	0.0	60.1
Prop In Lane	0.15	0.85	1.00			0.04
Lane Grp Cap(c), veh/h	231	0	151	994	0	815
V/C Ratio(X)	0.88	0.00	0.80	0.63	0.00	0.98
Avail Cap(c_a), veh/h	628	0	692	994	0	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	45.6	7.8	0.0	18.3
Incr Delay (d2), s/veh	4.1	0.0	3.7	1.3	0.0	25.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	17.7	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	3.5	19.5	0.0	27.1
LnGrp Delay(d),s/veh	46.6	0.0	49.3	26.8	0.0	44.0
LnGrp LOS	D		D	C		D
Approach Vol, veh/h	203			747	798	
Approach Delay, s/veh	46.6			30.5	44.0	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.4	68.7				82.1		19.4
Change Period (Y+Rc), s	4.7	5.1				5.1		4.7
Max Green Setting (Gmax), s	8.7	65.0				65.0		40.0
Max Q Clear Time (g_c+I1), s	8.9	62.1				24.4		14.7
Green Ext Time (p_c), s	0.0	1.5				4.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	40	700	900	20
Future Vol, veh/h	10	0	40	700	900	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	10	0	41	722	928	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1743	939	949	0	-	0
Stage 1	939	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	95	319	719	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	90	319	719	-	-	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	357	-	-	-	-	-
Stage 2	439	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.8	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	719	-	213	-	-	-
HCM Lane V/C Ratio	0.057	-	0.048	-	-	-
HCM Control Delay (s)	10.3	-	22.8	0	-	-
HCM Lane LOS	B	-	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	20	730	30	10	680
Future Vol, veh/h	40	20	730	30	10	680
Conflicting Peds, #/hr	0	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	21	760	31	10	708

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1489	762	0	0	792	0
Stage 1	761	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	136	403	-	-	824	-
Stage 1	459	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	402	-	-	823	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	304	823	-
HCM Lane V/C Ratio	-	-	0.206	0.013	-
HCM Control Delay (s)	-	-	19.9	9.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Intersection	
Int Delay, s/veh	31

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	150	160	620	560	160
Future Vol, veh/h	140	150	160	620	560	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	147	158	168	653	589	168

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1578	589	757	0	-	0
Stage 1	589	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	~ 120	506	849	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 96	506	849	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	359	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	185.6	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	849	-	243	-	-
HCM Lane V/C Ratio	0.198	-	1.256	-	-
HCM Control Delay (s)	10.3	-	185.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.7	-	15.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	10	640	0	10	790	30
Future Vol, veh/h	0	0	0	0	0	10	10	640	0	10	790	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	10	10	653	0	10	806	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1520	1515	822	1515	1530	653	837	0	0	653	0	0
Stage 1	842	842	-	673	673	-	-	-	-	-	-	-
Stage 2	678	673	-	842	857	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	97	119	372	97	116	466	793	-	-	929	-	-
Stage 1	357	379	-	443	452	-	-	-	-	-	-	-
Stage 2	440	452	-	357	373	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	115	372	95	112	466	793	-	-	929	-	-
Mov Cap-2 Maneuver	93	115	-	95	112	-	-	-	-	-	-	-
Stage 1	350	375	-	434	443	-	-	-	-	-	-	-
Stage 2	422	443	-	353	369	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.9	0.1	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	793	-	-	-	466	929	-	-
HCM Lane V/C Ratio	0.013	-	-	-	0.022	0.011	-	-
HCM Control Delay (s)	9.6	-	-	0	12.9	8.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

ST. HELENA
CALIFORNIA

From: Lorraine Ruston [mailto:rustfamvin@aol.com]
Sent: Thursday, March 14, 2019 9:30 AM
To: Noah Housh
Subject: Proposed land use change to property

Dear Noah,

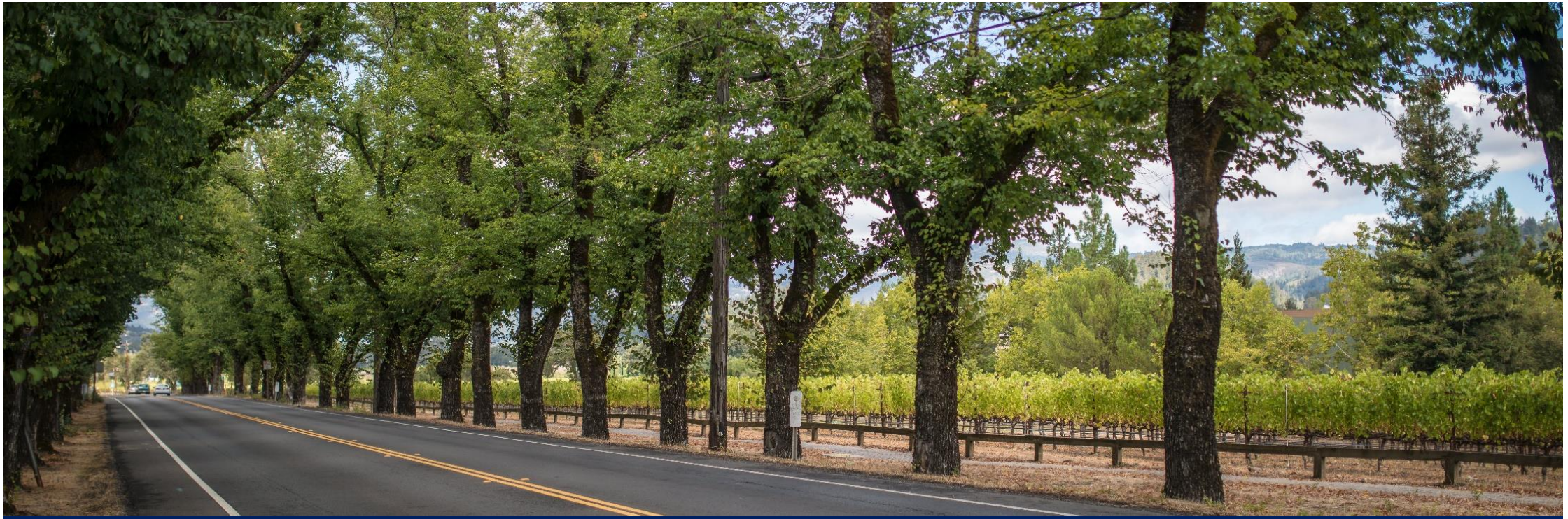
I am the owner of the property located at the west end of Spring Street. (2798 Spring Street) I am writing this letter to ask the Planning Commission and City Council to adopt the proposed modification. This is item # 9 of the sites that have been identified for land use change.

I have been waiting for this change to be made for a long time. In September, 2008, I sent a letter requesting the change to Carol Poole when she was Planning Director. Let me know if you would like to see a copy of that letter.

Thank you very much.

Sincerely,

Lorraine Ruston



City of St. Helena General Plan Update 2040

Planning Commission Meeting

March 19, 2019

Tonight's Presentation

1. Overview of General Plan Update 2040 Process and Content
2. Overview of EIR Process
3. EIR Findings
   - Summary of impacts
   - Alternatives analyzed
4. Public Comments on GP 2040 and EIR

DYETT & BHATIA
Urban and Regional Planners

1. Overview of GP 2040 Process and Content

Overview of GP 2040 Process

- The General Plan Update process initially began in 2007. A draft General Plan Update and Draft Environmental Impact Report were published in summer 2010 and recommended for approval by the Planning Commission.
- During City Council review, a number of issues arose. Review continued between 2010 and 2016.
- On January 9, 2018, Dyett & Bhatia began the process of finalizing the GP 2040 and preparing a new EIR. The new documents include updated data, documentation of existing conditions, and inclusion of the Study Areas to comprehensively consider potential environmental impacts.
- On August 14, 2018, the Planning Commission and City Council met to provide final direction on the GP 2040 and EIR, including addition of new policies to ensure CEQA compliance.
- On October 23, 2018, the City of St. Helena published the DEIR for a public comment review period of 72 days. This period ended on January 2, 2018 and work began on the draft FEIR, including Response to Comments.

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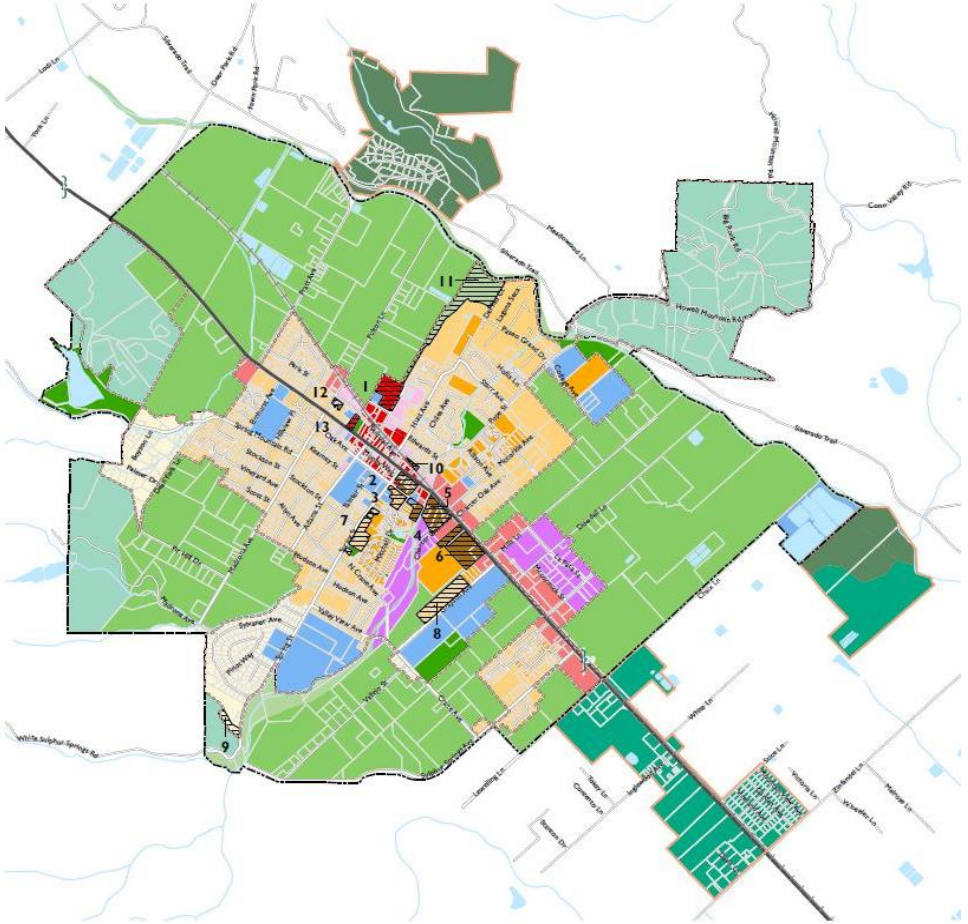
Overview of GP 2040 Content

The GP 2040 includes:

1. New Mixed Use designation
2. Capital improvements for non-motorized transportation
3. Updates to address new state requirements



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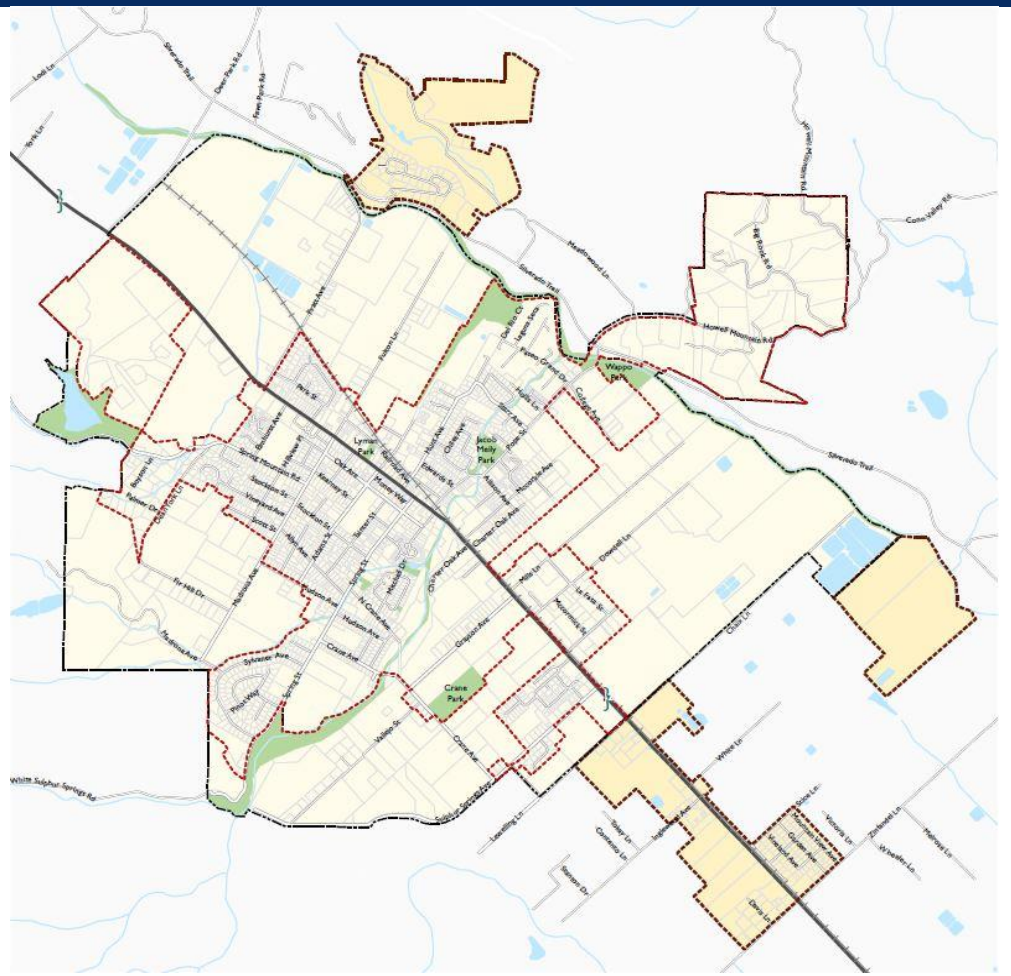
Overview of GP 2040 Content

- The GP 2040 Planning Area includes three Study Areas located just beyond the City of St. Helena boundary and Sphere of Influence
- Study Areas are included for the purpose of environmental analysis



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3. Overview of EIR Process

Overview of EIR Process

- The City of St. Helena issued a Notice of Preparation (NOP) on April 2, 2018 to request comments and guidance on the scope and content of the EIR through May 1, 2018. The Planning Commission also held a public scoping meeting on April 17, 2018.
- The EIR scoping process identified significant community concern in the areas of traffic, emergency evacuation and access, including flooding, and water supply.
- Dyett & Bhatia prepared the draft EIR with new data and documented existing conditions throughout the planning area, including three Study Areas. The EIR analyzed all areas of potential environmental impacts required under CEQA.
- On October 23, 2018, the City of St. Helena published the DEIR for a public comment review period of 72 days. This period ended on January 2, 2018 and work began on the draft FEIR, including Response to Comments.

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Overview of EIR Process

CEQA Required Environmental Review Topics

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural, Tribal, and Historic Resources
- Energy, Climate Change, and Greenhouse Gas Emissions
- Forestry
- Geology and Seismicity
- Hazards and Hazardous Materials
- Hydrology, Drainage, and Water Quality
- Land Use, Population, and Housing
- Mineral Resources
- Noise and Vibration
- Public Services and Recreation
- Traffic and Transportation
- Utilities and Service Systems

CEQA-Required Conclusions

- Significant environmental effects and mitigation measures to reduce or avoid them
- Significant irreversible environmental changes
- Growth-inducing impacts
- Cumulative impacts
- Alternatives

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4. EIR Findings

EIR Findings

Summary of Findings

- The majority of impacts under the GP 2040 would be less than significant
- **Three** significant impacts would be reduced to **less than significant with mitigation**
  - Air Quality
  - Hydrology
  - Noise
- **Six** impacts would be **significant and unavoidable**
  - Agriculture
  - Air Quality
  - Energy, Greenhouse Gases, and Climate Change
  - Traffic and Transportation

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EIR Findings

Significant Impacts Reduced to Less than Significant with Mitigation (LTSM)

- Air Quality
  - **3.3-4:** Expose sensitive receptors to substantial pollutant concentrations

    Mitigation: require certain proposed projects to meet CARB setback requirements and/or prepare a Health Risk Assessment to identify and mitigate potential impacts from diesel and stationary sources of particulate matter
- Hydrology and Water Quality
  - **3.9-6:** Place housing within a 100-year flood hazard area

    Mitigation: require proposed projects within FEMA-designated floodways to obtain and submit to the city a Letter of Map Revision (LOMR) from FEMA
- Noise
  - **3.11-2:** Expose people to or generate excessive groundborne vibration or groundborne noise levels

    Mitigation: where vibration impacts may cause structural damage or distinctly perceptible human response, require a vibration study, prepared by a qualified vibration consultant

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EIR Findings

Significant and Unavoidable (SU) Impacts

- Agriculture
  - **3.2-1:** Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (SU)
    Mitigation: no mitigation feasible
- Air Quality
  - **3.2-2:** Violate air quality standards, contribute to air quality violation, or result in cumulatively considerable net increase in criteria pollutants (SU)
    Mitigation: require proposed projects to implement BMPs to reduce fugitive dust emissions and use low-VOC content architectural coatings; require potential point sources to ensure compliance with BAAQMD regulations
  - **3.2-3:** Result in cumulatively considerable net increase in criteria pollutants for which the General Plan region is nonattainment (SU)
    Mitigation: see mitigation for 3.2-2

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EIR Findings

Significant and Unavoidable (SU) Impacts

- Energy, Greenhouse Gases, and Climate Change
  - **3.6-1:** Generate GHG emissions that may have a significant impact on the environment
    Mitigation: City shall adopt and implement a Climate Action Plan to address GHG reduction goals in line with statewide targets
  - **3.6-2:** Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions
    Mitigation: see mitigation for 3.6-1
- Traffic and Transportation
  - **3.12-1:** Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness (vehicular traffic)
    Mitigation: require actions such as installation of traffic signals, intersection re-striping, roadway realignment, and construction of proposed improvements to address impacts at 7 intersections in the planning area

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EIR Findings

Alternatives

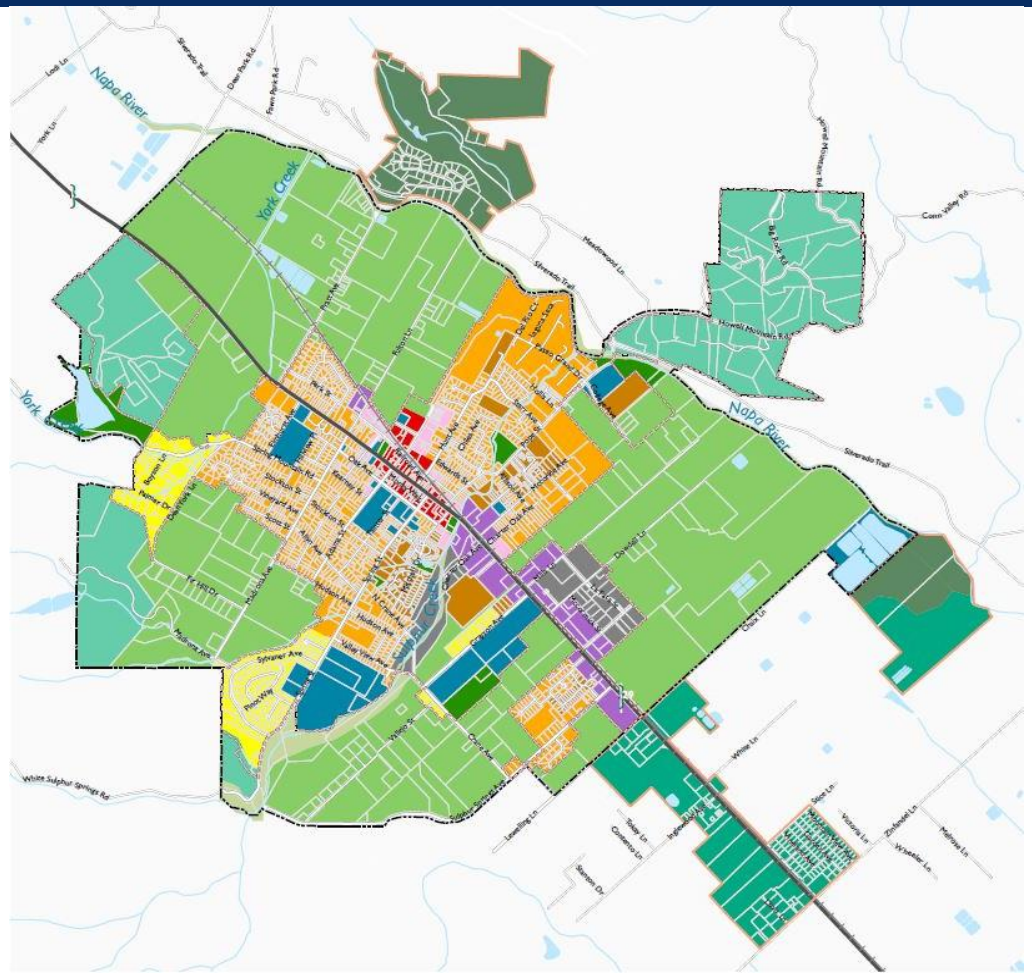
CEQA requires that an EIR analyze a range of alternatives to the proposed project that "include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (CEQA Guidelines Section 15126.6 (d)(2)). This EIR analyzes:

- The **No Project Alternative**, which would assume the continuation of the current General Plan, including the policy framework and all land use designations.
- A **Transportation Network Enhancement (TNE) Alternative**, which modifies the GPU transportation network to extend Oak Avenue south from Mitchell Lane to Grayson Avenue.

EIR Findings

No Project Alternative

- The No Project Alternative lacks protective GP 2040 policies and would increase significant impacts.
- Less than significant impacts with mitigation on air quality and noise
- Significant and unavoidable impacts on agricultural resources, greenhouse gases and climate change, and transportation
- Reduced impacts on hydrology and traffic due to reduced development and VMT
- New significant and unavoidable impacts on biological, tribal cultural, and paleontological resources due to lack of protective policies



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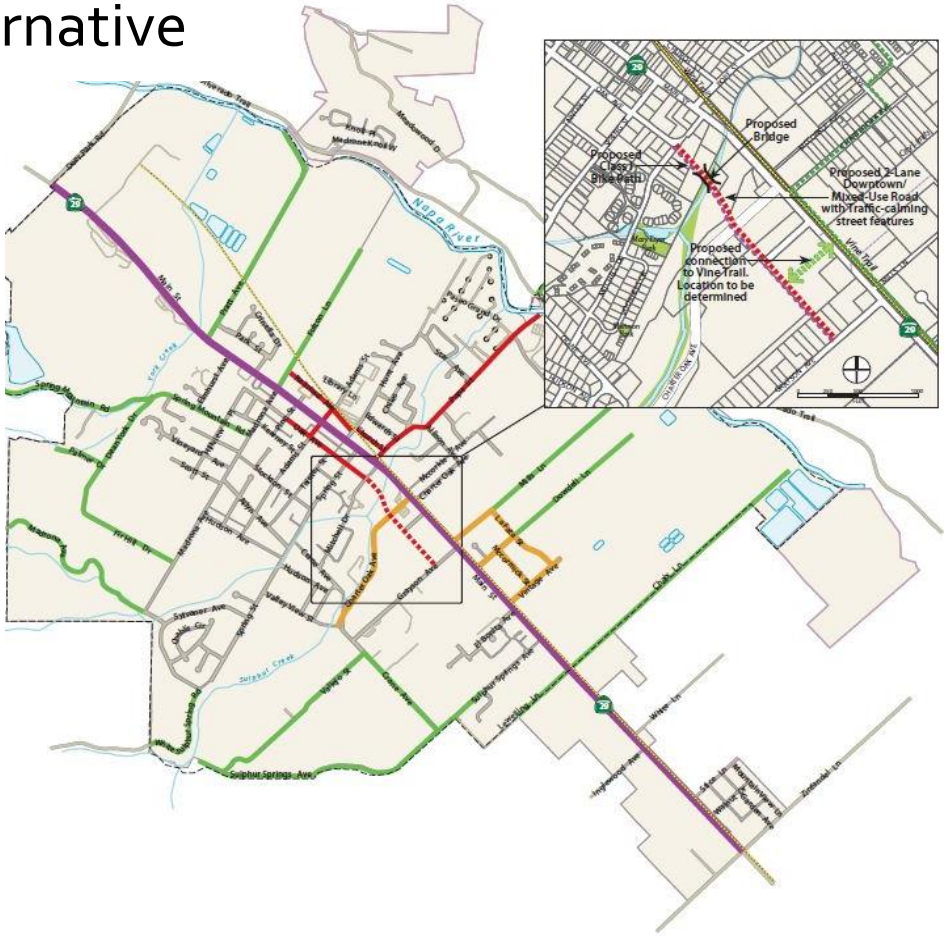
EIR Findings

Transportation Network Enhancement Alternative

- The TNE Alternative would have the same policy framework and land use as the GP 2040, but would include an extension of Oak Avenue.
- Less than significant impacts with mitigation on air quality, hydrology, and noise
- Significant and unavoidable impacts on agricultural resources, air quality, greenhouse gases and climate change, and transportation
- New less than significant impact with mitigation on hydrology due to new development in flood zones
- New significant and unavoidable impact on permanent ambient noise levels due to extension of Oak Avenue through agricultural land



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EIR Findings

Transportation Network Enhancement Alternative

- Extension of Oak Avenue would:
  - Create a new Downtown/Mixed Use street with connection to the Vine Trail
  - Improve bicycle and pedestrian access to local schools and Downtown St. Helena
  - Relieve anticipated increases in vehicle congestion and queuing on SR-29
- The TNE Alternative would reduce multiple transportation impacts of GP 2040 :
  - Less VMT than the GP 2040 (which would increase VMT by 25% over existing conditions)
  - Eliminate significant impact at Main Street/Pope Street-Mitchell Drive intersection
  - Result in peak hour queuing conditions along Main Street south of Downtown area equivalent to existing conditions, and therefore a reduced impacts to upstream intersections. (GP 2040 would increase peak hour queuing conditions in this area)

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5. Public Comments on GP 2040 and EIR

Public Comments on GP 2040 and EIR

- Over 350 individual comments on the GP 2040 and EIR were received. Generally, comments provided recommendations for minor edits to improve the clarity of information in the document, and did not recommend changes to the content or policy framework.
- Some of the public and agency comments on the GP 2040 and EIR relate to the legal requirements for a general plan or require further direction from the Planning Commission and City Council. The FEIR includes a detailed response to these comments, which address:
  - Levee/Floodwall Failure
  - Farmland Mitigation
  - Land Use Element Action LU1.A
  - Noise Evaluation Criteria
  - Implementation of Pedestrian Improvements

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Public Comments on GP 2040 and EIR

Levee/Floodwall Failure

- One commenter requested a map of areas at risk in the event of levee/floodwall failure be included in the GP 2040 and provided several comments regarding associated risks.
- The requirement for inclusion of such a map does not apply to St. Helena, and maps included in the GP 2040 fulfill the Safety Element requirements.
- A map showing an area potentially affected by levee or floodwall failure is included in the FEIR for informational purposes. This area depicted is substantially similar to the FEMA FIRM area shown in GP 2040 Figure 9.1.

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Public Comments on GP 2040 and EIR

Farmland Mitigation

- The Division of Land Resource Protection of the California Department of Conservation requested additional mitigation to address the significant impact of loss of prime farmland in St. Helena due to development.
- A new action (LU5.I) regarding the establishment of a farmland mitigation program has been incorporated to the GP 2040 Land Use Element to offset impacts on prime farmland.
- Numerous policies in GP 2040 address the potential loss of prime farmland. LU5.I has been added to fulfill the CEQA requirement that lead agencies consider all feasible measures that address significant impacts.
- Even with implementation of LU5.I and relevant GP 2040 policies, the impact would remain significant and unavoidable as agricultural land is a finite and irreplaceable resource.

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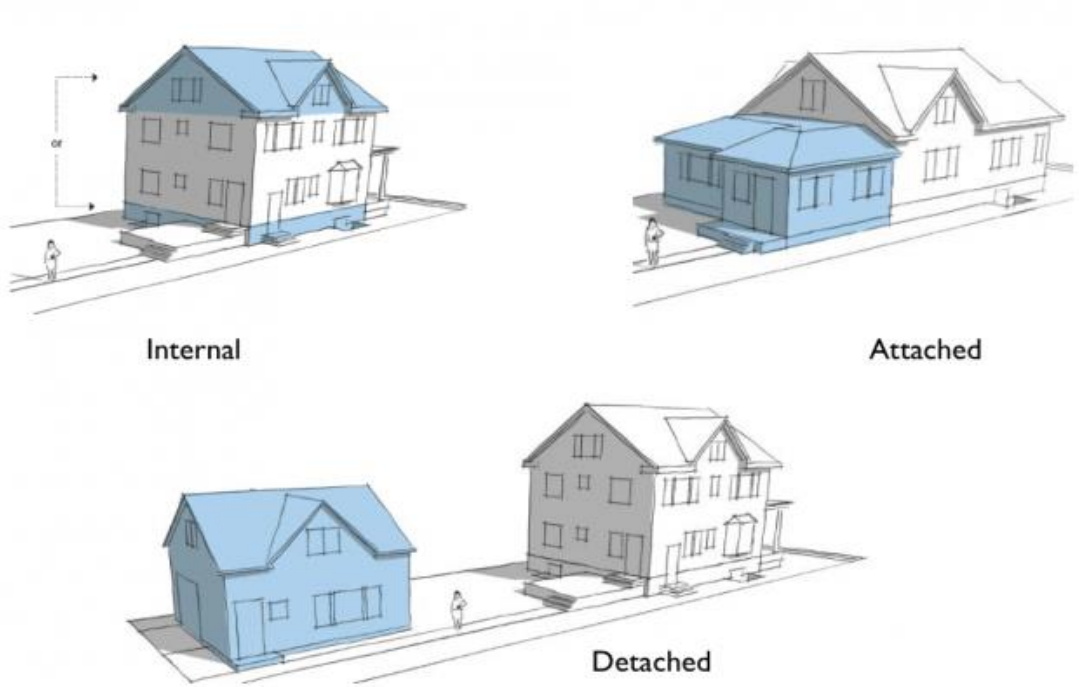
Public Comments on GP 2040 and EIR

Land Use Element Action LU1.A

- A commenter highlighted potential conflict with recent State law regarding Accessory Dwelling Units (ADUs).

> LU1.A Continue to allow the construction of second units – also known as accessory dwelling units – ***and consider allowing the division of single-family homes into two or more units under appropriate circumstances***, in order to increase residential density and housing availability without requiring an extension of the Urban Limit Line.



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Public Comments on GP 2040 and EIR

Noise Evaluation Criteria

- 1993 General Plan contained this Significance Criteria:

  "Typically, a change in noise levels of less than 3 dBA is not discernable to the general population. Increases in average noise levels from 3 to 5 dBA are clearly discernable to most people. An increase in the noise environment of 5 dBA or greater is considered to be subjectively significant and to constitute noise impact by the noise source in question."

- Typical threshold that was used in the EIR analysis
- EIR found buildout of the Proposed General Plan is not anticipated to increase noise levels greater than 3dBA CNEL over existing conditions

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Public Comments on GP 2040 and EIR

Implementation of Pedestrian Improvements

- The Napa Valley Transportation Authority (NVTA) requested inclusion of an action to implement the improvements identified for St. Helena in the 2016 Napa Countywide Pedestrian Plan.
- The following action could be added to the GP 2040:
  Coordinate with NVTA, Napa County, and property and business owners and seek funding to implement the improvements identified for St. Helena in the 2016 Napa Countywide Pedestrian Plan.

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Next Steps

- Commission acceptance of the Final EIR and recommendation to the City Council
- City Council review and certification of the Final EIR and adoption of the St. Helena 2040 General Plan
- Potential future meeting dates include April 2 (PC); May 14 (CC), May 28 (CC) and/or June 11, 2019.

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Questions?

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PLANNING COMMISSION REPORT

Planning Commission Meeting of March 19, 2019

AGENDA SECTION: Scheduled Matters

FILE NUMBER: n/a

SUBJECT: Use of Official Zoning Code Interpretations to Clarify Code Requirements

PREPARED BY: Noah Housh, Planning & Community Improvement Director

REVIEWED BY: Noah Housh, Planning & Community Improvement Director

APPROVED BY: Noah Housh, Planning & Community Improvement Director

APPLICATION FILED:

LOCATION OF PROPERTY: Citywide

APN: Citywide

GENERAL PLAN/ZONING: Citywide

APPLICANT: City of St. Helena **PHONE:** 707-968-2659

BACKGROUND

From time to time there are issues that arise requiring interpretation to clarify the intent and direction of the zoning code language. This lack of clarity causes challenges for the community, staff and the Planning Commission to ensure consistent application of zoning requirements on a variety of proposed projects.

PROJECT DESCRIPTION

Staff is proposing to utilize an "Official Zoning Code Interpretation" process by which the intent of this language may be formally clarified in a format allowing the Planning Commission and general public to review and provide input on the proposed interpretation, prior to the interpretation being implemented. These Official

Interpretations will then be indexed for consistent use and application, and ultimately utilized to inform a future comprehensive Zoning Code Update.

ANALYSIS

This process is purely the clarification of existing code language and provisions and therefore no additional analysis is required. However, staff does request input from the Planning Commission and general public to ensure the intent is clearly communicated in the Interpretation language, and there is support for the position. These Interpretations are being made through the Administrative Determination process to ensure code consistency and due process are provided.

ISSUES

No issues have been identified with the use or implementation of a formal code interpretation.

CORRESPONDENCE

As of the drafting of this report, no communication has been received.

STAFF RECOMMENDATION

It is recommended that the Planning Commission review the Official Zoning Code Interpretation Number One to provide input regarding the clarity of the language, and the position being articulated.

ATTACHMENTS

Zoning Code Interpretation No 1-Accessory Uses

OFFICIAL ZONING CODE INTERPRETATION NUMBER 1

DATE: March 19, 2019

TO: City of St. Helena Planning Commission and Interested Citizens

FROM: Noah Housh, Planning and Community Improvement Director

RE: Definition of Accessory Use in Commercial Zoning Districts

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PROJECT DESCRIPTION

The issue in question addresses the need for clarity and definition to identify a separate use or element of an existing business which is deemed to be "accessory" to a primary permitted or conditional land use which has previously been granted approval to operate within that zoning district.

Currently, 'Accessory Uses' are generally identified as permitted elements of existing uses (both permitted and conditional) within the City's established commercial zoning districts (as identified in Sections 17.48.050, 17.52.050, 17.56.050 and 17.60.050). Specifically, each of these districts includes language describing that accessory uses, buildings and structures are permitted and lists the following allowances:

A. Signs subject to the provisions of Chapter 17.148;

B. Small recycling centers (not more than five hundred (500) square feet) including mobile recycling units, nonprofit drop-off facilities, and reverse vending machines, subject to design review approval by the planning director;

C. On-site storage facilities accessory to the primary use subject to design review approval by the planning commission. On-site storage shall not be located within required parking areas. Design review will include, but not be limited to, location, length of time for the storage facility and size of the storage facility;

D. Cottage food operations subject to the provisions of Section 17.116.045;

E. Other uses and structures which are customarily incidental and clearly subordinate to permitted and conditional use pursuant to procedures in Chapter 17.08. (Ord. 16-3 § 10: Ord. 10-8 § 2 (Exh. A (part)): prior code § 27.75)

At issue is that no further definition is provided regarding what uses would be determined to be "customarily incidental and clearly subordinate" to a permitted or conditional use, or how the determination of an accessory use would be conducted. This lack of specificity creates ambiguity and confusion for the public and staff in the application of this element of the Zoning Code.

INTERPRETATION

In order to address this unanswered element of the Zoning Code, staff has formulated the following definition for an *accessory use* that will be used to apply this code provision, until a comprehensive update to the zoning ordinance is conducted.

Accessory Use-Any incidental or subordinate element of a commercial business operation that encompasses no more than 15-percent of the business floor area or 15-percent of the gross revenue receipts, which does not expand the current building foot print and is clearly within the purpose established for the zoning district the accessory use is located within, and is not identified as a prohibited use in that zoning district.

The construction of accessory buildings or structures are not included within this interpretation as there is no confusion regarding the zoning provisions regarding these elements of a commercial business.

APPEALS

This interpretation is subject to a 14-day appeal period. Anyone interested in appealing this interpretation shall file an appeal with the Planning Director within 14-days of the date of this letter. The letter of appeal must state: (1) the specific action objected to; (2) the action appellant requests the Planning Commission to take; (3) the reason for the appeal; and (4) the name, address, and telephone number of the appellant or contact person if there are multiple appellants and be accompanied by the appropriate fee.

Notice of this interpretation will be provided to the Planning Commission at their next regularly scheduled meeting (March19, 2019).

Thank you for your attention to this matter.

Noah Housh
Planning and Community Improvement Director
City of St Helena.