City of St. Helena
Regular City Council Meeting
Tuesday, March 28, 2023 @ 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.

The City Council meeting will be live-streamed on Comcast Channel 28 and on the City's website. Public comment for City Council meetings will be accepted via email to publiccomment@cityofsthelena.org. All public comments must be emailed three hours prior to the meeting. Emailed public comments will not be read out loud but will be publicly available and attached to the on-line City Council agenda.

The schedule of upcoming meetings and published meeting agendas can be found on the City of St. Helena website at https://sthelena.civicweb.net/portal/.

Simultaneous Spanish interpretation services during meetings can be scheduled upon request. To ensure interpreters are available, requests must be made at least 72 hours in advance by calling the Office of the City Clerk at (707) 968-2640 or emailing cityclerk@cityofsthelena.org.
The schedule of upcoming meetings and published meeting agendas can be found on the City of St. Helena website at https://sthelena.civicweb.net/portal/.

Servicios de interpretación en español durante la reunión pueden ser solicitados por el público. Para asegurar que los intérpretes estén disponibles, los servicios tienen que ser solicitados al menos 72 horas antes de la reunión llamando a la oficina de la Secretaria de la Ciudad al (707) 968-2640 o por correo electrónico a cityclerk@cityofsthelena.org .
El horario de las reuniones publicadas y próximas puede ser localizado en el sitio de web de la Ciudad en https://sthelena.civicweb.net/portal/ .

Page

1. CALL TO ORDER

2. ROLL CALL
   Mayor: Paul Dohring, Vice Mayor Eric Hall:, City Council Members: Anna Chouteau, Lester Hardy, Billy Summers

3. PLEDGE OF ALLEGIANCE

4. ADOPTION OF THE AGENDA

5. PUBLIC FORUM:
   Members of the public are entitled to speak on matters of municipal concern not on the agenda during Public Forum. Each person's comments shall be limited to 4 minutes. Each person is entitled to speak on any non-agendized item only once at any meeting. Brief questions by Council Members for clarifications may be posed and answered, and Council Members may make requests that items be placed on future agendas, but in accordance with state law, no substantive

discussion or action may take place unless and until the matter properly appears on the agenda.

6. REPORTS BY STAFF AND CITY COUNCIL, FUTURE AGENDA ITEMS, AND AB 1234 REPORTS:
Reports by staff and/or Council Members on items of general interest. Brief questions for clarification may be posed and answered, and Council Members 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.

7. PRESENTATIONS AND PUBLIC RECOGNITIONS

7.1. Oath of office for Yosselyn Valencia, Finance Manager administered by Cindy Tzafopoulos, City Clerk

8. STAFF BRIEFING

None

9. 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. (Roll Call Vote)

9.1. Consideration and approval of a resolution approving Sanitary Sewer Management Plan version 8 as required by State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP). 9 - 305

CEQA Determination: Exempt
Prepared By: Clayton Church, Public Works Operations Manager
Recommendation:
Adopt attached Resolution.
Staff Report - Pdf

9.2. February 2023 Review and Forecasting of City Water Supply Availability 307 - 312

CEQA Determination: Exempt
Prepared By: Ian Dale, Environmental Services Tech
Recommendation:
Receive and File
Staff Report - Pdf

9.3. Consideration and proposed adoption of a Resolution authorizing the City Manager to execute Amendment No. 1 to STH Contract: FY2023-001 in the amount of $25,000 to the Professional Services Agreement with Regional Government Services (RGS) for finance assistance for a total amount not-to-exceed $50,000. 313 - 331

CEQA Determination: Not a CEQA project
Prepared By: Mandy Kellogg, Administrative Services Director
Recommendation:

Adopt the attached resolution.

Staff Report - Pdf

9.4. Review and consideration of the 2022 St. Helena Annual Housing Element Progress Report. 333 - 347

CEQA Determination: Not a CEQA project
Prepared By: Aaron Hecock, Senior Planner
Recommendation:
It is recommended that the City Council review, consider, and file this report recognizing that staff submitted the information to HCD and OPR in keeping with the April 1, 2023 mandate.

Staff Report - Pdf

9.5. Consideration of approval of a Resolution approving out-of-state travel for (1) Administrative Services Director, Mandy Kellogg, to attend the 2023 ICMA Local Government Reimagined Conference to be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont (2) Senior Management Analyst, Martin Beltran, to attend the Government Finance Officers Association (GFOA) 117th Annual Conference to be held May 21-24, at the Oregon Convention Center, Portland, Oregon. 349 - 353

CEQA Determination: Not a CEQA project
Prepared By: Martin Beltran, Senior Management Analyst
Recommendation:
Approve the attached resolution

Staff Report - Pdf

9.6. Consideration of a Resolution to execute contract amendment with BKF for design work related to the Main Street St. Helena Pedestrian Improvements Project and authorizing a budget increase of $151,000 to design in CIP Project R18-81 with funding allocated from Gas Tax Funds to Streets Capital Fund 741. 355 - 372

CEQA Determination: Exempt
Prepared By: Eric Janzen, Assistant Public Works Director
Recommendation:
Approve Resolution to execute contract amendment with BKF for design work related to the Main Street St. Helena Pedestrian Improvements Project and authorizing a budget increase of $151,000 to design in CIP Project R18-81 with funding allocated from Gas Tax Funds to Streets Capital Fund 741.

Staff Report - Pdf

9.7. Consideration of A Resolution of the City Council of the City of St. Helena to Re-Affirm City Commitment to Housing Element for Regional Housing Need Assessment (RHNA), the Metropolitan Transportation Commission (MTC) adopted Resolution No. 4505 and Comply with State Housing Laws. 373 - 379

CEQA Determination: Not a CEQA project
Prepared By: Eric Janzen, Assistant Public Works Director
Recommendation:

Approve A Resolution of the City Council of the City of St. Helena to Re-Affirm City Commitment to Housing Element for Regional Housing Need Assessment (RHNA), the Metropolitan Transportation Commission (MTC) adopted Resolution No. 4505 and Comply with State Housing Laws.

Staff Report - Pdf

9.8. Consideration and proposed approval of a Resolution authorizing: (1) various scope amendments and budget transfers among the Streets Capital Improvement Program Projects, specifically: R21-02 Crosswalk Improvements on Main Street/Highway 29 at Pratt Avenue and Elmhurst Avenue; R21-04 Pope Street Crosswalk Improvements; R22-79 Pavement Restoration Year 2; R19-05 Grayson and South Crane Rehab which when implemented will have a total FY23 fiscal impact of approximately $798,806.98: (2) staff to execute the appropriate agreements, budget appropriations and transfers to effectuate the various Capital Improvement Program projects noted above; and (3) authorize the Director of Public Works to execute change orders not to exceed $475,000 in addition to the R22-79 Argonaut Construction contract. 381 - 392

CEQA Determination: Class I Categorical Exemption under Section 15301 of CEQA
Prepared By: Mario Traverso, Public Works Assistant Engineer
Recommendation:
Staff recommends City Council adopt the attached Resolution.

Staff Report - Pdf

Quarterly Grant Report for FY 2023 Q3, for the period ending March 31, 2023 393 - 400

CEQA Determination: Not a CEQA project
Prepared By: Martin Beltran, Senior Management Analyst
Recommendation:
Receive and file report.

Staff Report - Pdf

Consideration and Proposed Adoption of a Resolution Adopting a list of Projects for Fiscal Year 2023-24 funded by SB1: The Road Repair and Accountability Act of 2017. 401 - 405

CEQA Determination: Exempt from the requirements of CEQA pursuant to Section 15301, Class 1, which exempts the operation, leasing, or minor alteration of existing facilities
Prepared By: Mario Traverso, Public Works Assistant Engineer
Recommendation:
Adopt a resolution adopting a list of projects for fiscal year 2023-24 funded by SB1: The Road Repair and Accountability Act of 2017.

Staff Report - Pdf

10. PUBLIC HEARINGS

None

Consideration and proposed adoption of resolutions as follows: 407 - 574

1. Consideration and proposed approval of a resolution accepting the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study Final Report; and
2. Consideration and proposed approval of a resolution approving
    a. Changes to the water base rates, water use rates, fire line rates, and rate structure effective September 1, 2023; and
    b. Changes to the wastewater base rates, wastewater use rates, and rate structure effective September 1, 2023; and
    c. Approving Drought Surcharges and rate structure effective September 1, 2023: and
    d. The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will occur every subsequent year on July 1st for the next (5) years as follows:
        i. September 1, 2023
        ii. July 1, 2024
        iii. July 1, 2025
        iv. July 1, 2026
        v. July 1, 2027

CEQA Determination: Not a CEQA project
Prepared By: Mandy Kellogg, Administrative Services Director
Recommendation:
Staff recommends the following to the City Council:

1. By resolution, accept the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study Final Report; and
2. Adopt a resolution approving:
    a. Changes to the water base rates, water use rates, fire line rates, and rate structure effective September 1, 2023; and
    b. Changes to the wastewater base rates, wastewater use rates, and rate structure effective September 1, 2023; and
    c. Approving Drought Surcharges and rate structure effective September 1, 2023: and
    d. The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will occur every subsequent year on July 1st for the next (5) years as follows:
        i. September 1, 2023
        ii. July 1, 2024
        iii. July 1, 2025
        iv. July 1, 2026
        v. July 1, 2027

Staff Report - Pdf

11. OLD BUSINESS

11.1. 03-28-23 UPDATE *THIS ITEM WILL BE CONTINUED TO A DATE UNCERTAIN 575 - 616
Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan

CEQA Determination: Exempt from CEQA pursuant to Section 15262
Prepared By: Mark Rincon-Ibarra, Public Works Director and City Engineer
Recommendation:
Receive presentation and adopted the attached Resolution accepting the Integrated Utility Master Plan.

Staff Report - Pdf
Public comment - Gene Armstead
Public comment - David Sasson
Public comment - Katie Avery

12. NEW BUSINESS

None

13. ADJOURNMENT

The next Regular City Council meeting is scheduled for April 11, 2023, at 6:00 p.m.

This agenda was posted at City Hall, 1572 Railroad Avenue, and at Vintage Hall, 465 Main Street, St. Helena, California on March 23, 2023. Republished 03-28-23



Cindy Tzafopoulos, City Clerk

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 72 hours prior to the meeting as required by Section 202 of the Americans with Disabilities Act will enable the City to make reasonable arrangements to ensure accessibility to this 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 City Council regarding any item on this Agenda, after the posting of the Agenda, will be available for public review in the City Clerk's Office located at 1572 Railroad Avenue, St. Helena, California, during normal business hours and by appointment. In addition, such writings or documents will be made available on the City's web site at https://sthelena.civicweb.net and will be available for public review at the respective meeting.

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration and approval of a resolution approving Sanitary Sewer Management Plan version 8 as required by State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP).**

CEQA Determination: **Exempt**

Prepared By: Clayton Church, Public Works Operations Manager

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: Anil Comelo, City Manager

BACKGROUND

The City's SSMP (Sanitary Sewer Management Plan) was first developed in 2006 to comply with requirements initially put forth by the San Francisco Bay Regional Water Quality Control Board in July 2005. The SSMP has been updated several times, most recently in August 2010, to comply with State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP). Section D.13 of the WDR requires, at minimum, the City shall conduct an internal audit every two years. The two main topics of the audit were:

- Evaluation of effectiveness of the SSMP
- Evaluation of the City's compliance with SSMP requirements in the WDR

Larry Walker Associates (LWA) was tasked with performing an audit of the City's SSMP and updating it as needed to comply with current regulatory requirements and to reflect the City's current operating procedures. As a result, this updated SSMP must be

approved by City Council. The audit report is kept on file at City offices to be presented to regulatory agencies upon request and is also posted on the City Website.

DISCUSSION

LWA reviewed data related to each of the City's Sanitary Sewer Overflows (SSOs) from 2007-2022 to evaluate the effectiveness of the SSMP. Between 2007 and 2022 the City experienced a total of 47 SSOs with a volume of approximately 1 million gallons (MG). Twenty of the 37 were Category 1 with a total of approximately 0.48 MG reaching surface waters. The volume of each spill varies from less than 10 gallons to 811,918 gallons, with 19 out of the total 47 spills at 100 gallons or less. The City averages 3.4 SSOs a year with most spills being minimal and not reaching surface waters except for years with significant inflow and infiltration (I&I) into the sewer collections system. The most frequent cause of spills is the accumulation of fats, oils and grease (FOG) in the system, although, during large rain events I&I is the cause of the largest volume SSOs. I&I-caused SSOs generated 99.2% of the SSO volume that reached surface waters between 2007 and 2021. St. Helena did not have any reported I&I related spills until 2017. Prior to CIWQS reporting beginning in 2007 the City's only known I&I spills were from heavy winter storms in 2006.

Since the time of the City's last SSMP audit the San Francisco Regional Water Board performed a virtual audit of the City's collection system on August 26, 2021. The objectives of the compliance inspection were to investigate corrective actions taken by the City to address issues at the site of the City's two largest SSOs (2017 and 2019) at 290 Pope Street, confirm legally responsible officials (LROs) and data submitters for the City's collection system, and to review/discuss the City's SSMP.

Issues identified in the inspection report following the August 2021 virtual audit determined the following:

1. Found that the City's collections system team is understaffed.
2. Need for corrective action at 290 Pope Street.
3. Determine modifications needed to prevent future SSOs at various locations (e.g. CIP FY 2022-23 to FY 2026-27 WWRR-2 Flow monitoring program, WWRR-3 High Priority Pipeline Replacement, and WWRR-4 Model Update and System Analysis).
4. Update definition of Category 2 spills section 6.2 of SSMP (included in attached updated version 8 of SSMP).
5. Update documentation showing City Council approval of SSMP version 8.
6. Update the LRO information reflecting current City staffing (completed September 2021).

The implementation of the City's SSMP yields the overall number of spills are low with the highest number of spills and highest volume to reach surface waters occurring in periods of heavy rains in the winters of 2017 and 2019. The largest spills volume SSOs occurring at the same location at 290 Pope Street and that the City will deliver the various CIP (i.e. WWRR-2 through WWRR-4) to take corrective measures.

FISCAL IMPACT

There is no fiscal impact for the adoption of the updated SSMP.

RECOMMENDED ACTION
Adopt attached Resolution.

ATTACHMENTS
Reso SSMP update 2023
St Helena SSMP Audit Memo Nov2022 rev 12-28-22
StHelena SSMP V8 1-31-2023

CITY OF ST. HELENA

RESOLUTION NO. 2023-

Resolution of the City Council of the City of St. Helena Consideration and approval of a resolution approving Sanitary Sewer Management Plan version 8 as required by State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP)

WHEREAS, The City's SSMP (Sanitary Sewer Management Plan) was first developed in 2006 to comply with requirements initially put forth by the San Francisco Bay Regional Water Quality Control Board in July 2005.

WHEREAS, The SSMP has been updated several times, most recently in August 2010 to comply with State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP).

WHEREAS, Section D.13 of the WDR requires at minimum the City shall conduct an internal audit every two years.

WHEREAS, Larry Walker Associates (LWA) was tasked with performing an audit of the City of St. Helena (City) Sewer System Management Plan (SSMP) and updating it as needed to comply with current regulatory requirements and to reflect the City's current operating procedures.

WHEREAS, Larry Walker Associates (LWA) reviewed data related to each of the City's Sanitary Sewer Overflows (SSOs) from 2007-2022 to evaluate the effectiveness of the SSMP.

WHEREAS, Since the time of the City's last SSMP audit the San Francisco Regional Water Board performed a virtual audit of the City's collection system on August 26, 2021.

NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ST. HELENA AS FOLLOWS:

SECTION 1. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 2. The City Council approves the Sanitary Sewer Management Plan version 8 as required by State Water Resources Control Board WQO-

2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP).

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023 by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Council Member Anna Chouteau: _____

Council Member Lester Hardy: _____

Council Member Billy Summers: _____

APPROVED: ATTEST:

_____ _____

Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

Memorandum

DATE: November 28, 2022, with revisions on December 27, 2022

TO: Joe Leach, City of St. Helena

COPY TO: Mark Rincon-Ibarra, City of St. Helena

SUBJECT: **City of St. Helena 2022 SSMP Audit**

Alina Constantinescu, P.E.
2246 Sixth St
Berkeley, CA 94704
510.883.9873 x15
510.883.9890 fax
alinac@lwa.com

Larry Walker Associates (LWA) was tasked with performing an audit of the City of St. Helena (City) Sewer System Management Plan (SSMP) and updating it as needed to comply with current regulatory requirements and to reflect the City's current operating procedures. This memorandum presents the audit report; the updated SSMP incorporating the audit recommendations is presented as a separate document. This audit report should be kept on file at City offices and presented to regulatory agencies upon request. The revised SSMP needs to be posted on the City website.[1]

Introduction

The City's SSMP was first developed in 2006 to comply with requirements initially put forth by the San Francisco Bay Regional Water Quality Control Board in July 2005. The SSMP has been updated several times, most recently in March 2019 to comply with State Water Resources Control Board WQO-2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR) and the associated Monitoring and Reporting Program (MRP).

This internal audit is required by Section D.13(x) of the WDR:

> (x) **SSMP Program Audits** - As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept

[1] In lieu of posting the SSMP online, an electronic copy of the SSMP and proof of the most recent Council certification can be mail to the State Water Resources Control Board.

on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

Accordingly, this audit report includes two main topics:

- an evaluation of the effectiveness of the SSMP, and
- an evaluation of the City's "compliance with the SSMP requirements" in the WDR.

It should also be noted that, at its recent December 6, 2022, meeting, the State Water Resources Control Board (SWRCB) adopted a revised WDR. As of the date of this Audit, the adopted WDR has not been published. When published, the City will need to review the WDR and determine what changes, if any, will be needed to bring its SSMP in compliance with the revised regulation.

Effectiveness of the SSMP

To evaluate the effectiveness of the SSMP, LWA reviewed data related to each of the City's Sanitary Sewer Overflows (SSOs). From 2007 to 2022 (to date) the City experienced 47 SSOs with a total volume of 1,024,570 gallons. Twenty of the 37 SSOs were Category 1 SSOs. A total of 484,029 gallons from SSOs reached surface waters. A summary of all SSOs is shown in Table 1 below. The volume of each spill varies from less than 10 gallons to 811,918 gallons, with 19 out of the total 47 spills at 100 gallons or less.

Table 1: City of St. Helena SSOs, 2007-2022 (all volumes in gallons)

Count	Date	Category	Total volume	Volume recovered	Vol. reached surface water	SSO Cause
1	09/07/07	3	40	40	0	Grease
2	09/28/07	3	100	100	0	Grease
3	11/20/07	1	2,000	200	1,800	Grease
4	01/28/08	3	15	15	0	Grease
5	07/31/08	3	40	40	0	Grease
6	03/27/09	3	20	20	0	Grease
7	03/29/09	3	40	40	0	Grease
8	09/12/09	3	20	20	0	Grease
9	03/01/10	3	15	15	0	Grease
10	09/11/10	3	10	10	0	Grease
11	03/14/11	1	500	400	100	Grease
12	03/14/12	1	50	50	1	Grease
13	12/07/12	3	25	0	0	Roots
14	12/12/12	3	50	0	0	Grease
15	01/03/13	3	20	18	0	Roots
16	01/25/13	3	70	60	0	Grease
17	07/02/13	3	10	8	0	Roots
18	09/24/13	3	10	10	0	Built-up solids
19	06/01/14	3	300	270	0	Roots
20	06/09/16	3	4	4	0	Debris
21	09/12/16	3	255	10	0	Grease
22	01/10/17[(1)]	1	12,800	0	12,800	High I&I
23	01/11/17[(1)]	1	3,000	500	2,500	High I&I

Count	Date	Category	Total volume	Volume recovered	Vol. reached surface water	SSO Cause
24	02/07/17	1	63,725	0	63,725	High I&I
25	02/07/17	1	13,400	0	13,400	High I&I
26	02/07/17	1	300	0	300	High I&I
27	02/07/17[(1)]	1	5,205	0	5,205	High I&I
28	02/09/17	1	4,600	0	4,600	High I&I
29	02/09/17	1	220	0	220	High I&I
30	02/20/17	1	3,750	0	3,750	High I&I
31	02/04/18	1	950	0	950	Grease
32	03/01/18	1	880	0	880	Grease
33	05/16/18	3	14	3	0	Blockage in private line
34	09/23/18	3	390	150	0	Structural failure
35	10/01/18	3	24	15	0	Grease
36	10/08/18	3	170	110	0	Grease
37	10/17/18	3	230	140	0	Grease
38	2/14/19	1	27,500	7,660	19,840	High I&I
39	2/26/19	1	811,918	529,500	282,418	High I&I
40	2/26/19	1	11,655	0	11,655	High I&I
41	2/26/19	1	34,585	0	34,585	High I&I
42	2/26/19	1	12,425	0	12425	High I&I
43	2/26/19	1	6,950	0	6,950	High I&I
44	2/27/19	1	1,285	0	1,285	High I&I
45	2/27/19	1	260	0	260	High I&I
46	1/14/20	1	270	160	110	Grease
47	2/22/20	1	900	500	400	Grease
Total	**2007- 2022 (to date)**	**Category 1: 24 Category 2: 0 Category 3: 23**	**1,021,000**	**540,068**	**480,159**	**Grease: 22 High I&I: 17 Roots: 4 Other: 4**

(1) Volumes shown here are different than volumes reported in CIWQS. In the course of the data review, LWA noted that the volume for these three SSOs was improperly recorded in CIWQS. The City will work with the CIWQS helpdesk to correct the issue.

Annual SSO totals are shown in Table 2, with a graphical representation in Figure 2 and Figure 3. The annual number of spills vary between zero (2015, 2021, and 2022 to date) and 9 (2017) with an average of 3.4 spills per year (see Figure 1). Except for years with significant inflow & infiltration (I&I) spills, overall SSO volumes have been minimal with most spills not reaching surface waters (see Table 2 and Figure 2).

The most frequent cause of spills is grease, with 22 of the 47 total spills having been caused by grease (see Figure 3). Although grease causes the most SSOs, I&I during large precipitation events causes the largest SSO volumes (see Table 2 and Figure 1). From the time CIWQS reporting began in 2007, St. Helena did not have any I&I spills until 2017. In 2017 nine SSOs occurred in a period of back-to-back storms during January and February. In 2019 eight SSOs occurred in a two-week period of storms at the end of February, with one SSO over 800,000 gallons on 2/26/2019. I&I-caused SSOs generated 99.2% of the SSO volume that reached surface waters between 2007 and 2021. Prior to 2017, the last known I&I spills occurred during heavy winter storms in 2006, which was before CIWQS reporting began.

Table 2: SSOs, Annual Totals, 2007-2022 (all volumes in gallons)

Year	Total Number of SSOs	Category 1 SSOs	Total volume	Volume recovered	Vol. reached surface water	SSO Cause
2007	3	1	2,140	340	1,800	Grease
2008	2	0	55	55	0	Grease
2009	3	0	80	80	0	Grease
2010	2	0	25	25	0	Grease
2011	1	1	500	400	100	Grease
2012	3	1	125	50	1	Grease / Roots
2013	4	0	110	96	0	Grease / Roots / Other
2014	1	0	300	270	0	Roots
2015	0	-	-	-	-	-
2016	2	0	259	14	0	Grease/ Other
2017	9	9	131,005	1,000	130,005	High I&I
2018	7	2	2,658	418	1,830	Grease/ Other
2019	8	8	906,578	537,160	369,318	High I&I
2020	2	2	1,170	660	510	Grease
2021	0	-	-	-	-	-
2022 (to date)	0	-	-	-	-	-

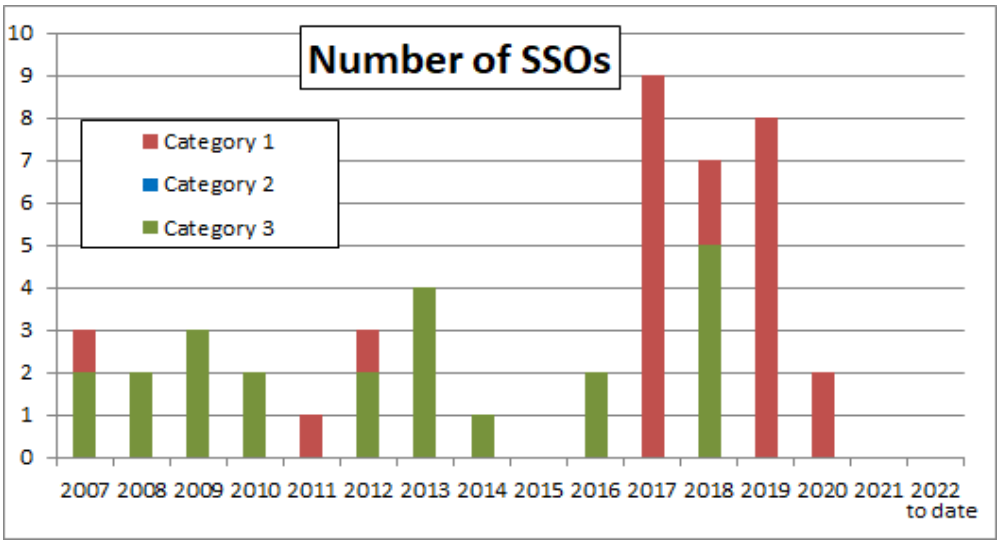


Figure 1: Number of SSOs by category, 2007-2022 (to date)

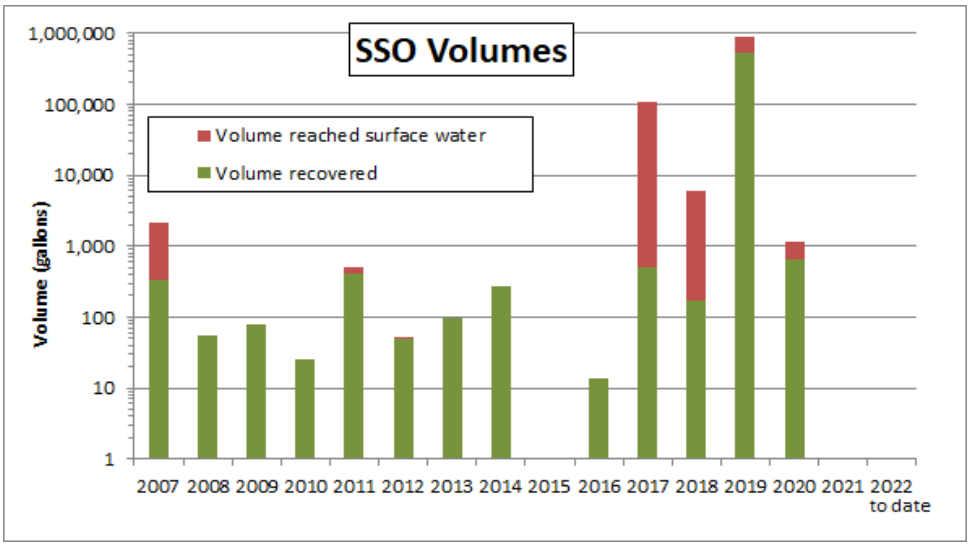


Figure 2: SSO total volume, volume recovered, and volume reaching surface waters, 2007-2022.

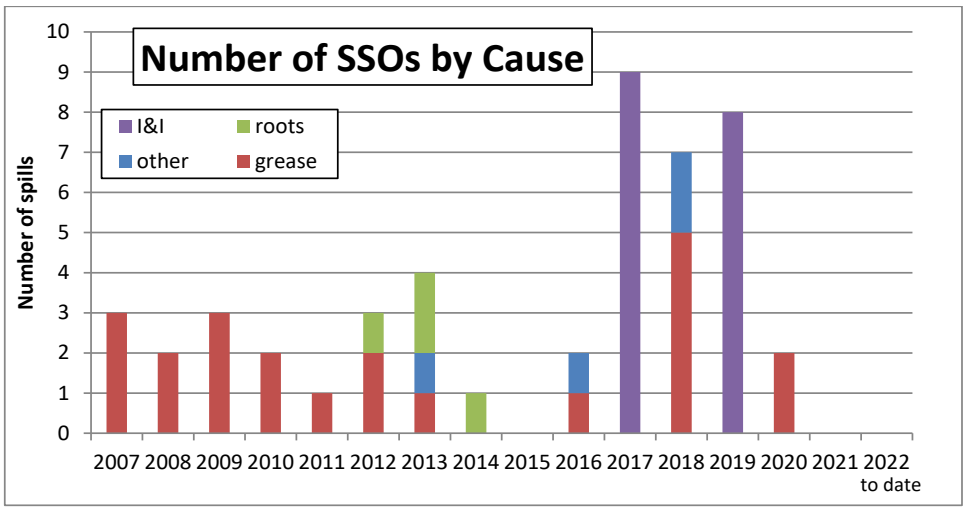


Figure 3: Number of SSOs by spill cause, 2007-2022.

The City's largest SSO, when 811,918 gallons spilled, occurred in February 2019, in the time since the previous SSMP Audit. The rain event that caused the SSO totaled 6.24 inches of precipitation from an atmospheric river event. The SSO location at 290 Pope St was the same location where the second largest SSO due to I&I occurred in 2017.

Also, since the time of the previous SSMP Audit, the San Francisco Regional Water Board (Regional Water Board) performed a virtual collection system inspection on August 26, 2021.

The main objectives of the compliance inspection were to investigate corrective actions the City performed to address issues at 290 Pope St., to confirm the legally responsible officials (LROs) and data submitters for the City's collection system, and to review and discuss the City's SSMP.

Issues identified in the inspection report that pertain to the effectiveness of the City's SSMP, and updates to date, are:

- The City's collection system team appeared to be understaffed at the time of the inspection; the City has recently hired a Public Works Director and is working on adding additional staff to its Collection System team.
- A need for corrective measures in the area of recurring I&I spills near 290 Pope St. including determining what modifications must be made to the collection system to prevent future SSOs at that location; the City is investigating these issues.
- Update to the definition of Category 2 spills in section 6.2 of the SSMP; the revised definition will be included in the next update to the SSMP, SSMP Version 8, expected December 2022.
- Update documentation to show City Council approval of the SSMP; the City plans to obtain Council-approval for the next version of the SSMP (Version 8, expected in December 2022).
- Update to LRO information in CIWQS to reflect current City staffing; the City updated the CIWQS LRO information in September 2021.

Audit Conclusions and Recommendations

Based on this evaluation, the following can be concluded about the effectiveness of the City's SSMP:

- The overall number of spills is low, with less than 10 spills a year.
- The highest number of spills as well as the highest volume to reach surface waters occurred over periods of heavy rains in the winters of 2017 and 2019. The City is working to upgrade the Crinella Pump Station to allow for pumping of higher volumes during storm events. The Audit recommends that the City track the frequency of I&I SSOs following the upgrades; if SSO rates are not improving, additional collection system capital projects may be needed.
- The City's largest two SSOs by volume occurred at the same location along 290 Pope St. The Audit further recommends that the City investigate potential design or capacity issues at this location and work to prevent SSOs reoccurrence here.
- The most frequent cause of spills is oil and grease, with 22 of the 47 total spills having been caused by grease. Following a 2007 grease spill where 1,800 gallons of sewage reached surface waters, the City implemented proactive weekly checks at system hotspots and FOG-caused spill volumes have decreased since. The Audit recommends the City continue its "hot spot" cleaning program as well as restaurant inspection and outreach program. These programs are discussed in Section 7 of the SSMP.
- The City will need to review the WDR and determine what changes, if any, will be needed to bring its SSMP in compliance with the revised WDR order recently issued by the SWRCB.

Compliance with SSMP Requirements

As part of this Audit, each SSMP element was reviewed and compared with WDR requirements D.13(i) through (xi).

A review and summary of recommendations for each SSMP Sections is presented below:

1. Goals

Audit task:
Review stated goals and recommend revisions as needed.

Audit findings:
Goals are up to date; no recommendations made at this time.

2. Organization

Audit task:
Review organization chart, roles and contact information for responsible officials, and recommend revisions as needed.

Audit findings:
The City's organization chart and roles needed updates to show the current roles and organization of the Public Works Department. The City also updated LRO personnel info on CIWQS.

3. Legal Authority

Audit task:
Review relevant Municipal Code sections (13.20 and 13.24) and their respective descriptions under this section and recommend revisions as needed.

Audit findings:
The Ordinances were found to be adequate; no updates were made since the last SSMP update in March 2019. The City's Municipal Code is available online; the online records are updated on a regular basis.

4. Operations and Maintenance

Audit task:
Review different subsections, compare against WDR requirements, and recommend revisions as needed.

Audit findings:
Most subsections were found to be up-to-date; revisions were made to note that the City does not use chemical root control (Section 4.2) and to reflect the City's current Capital Improvement Plan (Section 4.3).

5. ***Design and Construction Standards***

Audit task:
Review relevant section (Section 6 - Sanitary Sewer System) of the Water and Sewer Standards (Resolution No. 93-58, June 1993) and recommend revisions as needed.

Audit findings:
The Standards were found to be adequate. No recommendations made at this time.

6. Overflow Emergency Response Plan

Audit task:
Review the Overflow Emergency Response Plan, compare against WDR requirements, and recommend revisions as needed.

Audit findings:
Per findings in the The Overflow Emergency Response Plan is summarized in Section 6 of the SSMP. The full document is included as an attachment to the SSMP. The Plan was reviewed and the only recommendation was to update the Organization Chart.

7. Fats, Oils, and Grease (FOG) Control Program

Audit task:
Review description of FOG Control Program, compare against WDR requirements, and recommend revisions as needed.

Audit findings:
The City continues to identify and clean sections of the sewer system that are subject to grease blockages. The City continues to distribute materials regarding source control activities to educate local businesses about FOG control. The discussion on the City's restaurant inspection program was updated.

8. Capacity Management

Audit task:
Review the Capacity Management and System Evaluation and Capacity Assurance Plan subsections and recommend revisions as needed.

Audit findings:
The information in this section of the SSMP was found satisfactory; the only recommendation was to update the current status of CIP projects. See also Section 4.3.

9. Monitoring, Measurement, and Program Modifications

Audit task:
Review the subsections and recommend revisions as needed.

Audit findings:
Once the audit is finalized and audit recommendations incorporated into Version 8 of the SSMP, the SSMP updates will be summarized in this section.

10. SSMP Audits

Audit task:
Review section, compare against WDR requirements, and recommend revisions as needed.

Audit findings:
The section was found to be up to date.

11. Communication Program

Audit task:
Review section, compare against WDR requirements, and recommend revisions as needed.

Audit findings:
The section was found to be up to date.

City of St. Helena
Sewer System Management Plan
(SSMP)

City of St. Helena
Wastewater Treatment and Reclamation Plant
Sewer System Management Plan

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Infiltration/Inflow Analysis (2000)
Sewer Flow Isolation Study (2007)
Manhole Surveys
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Sanitary Sewer Maintenance Report
Sanitary Sewer Work Sheet
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Introduction

The City of St. Helena's (City) sanitary sewer collection system conveys wastewater for the area within the city limits (3,285 acres) to the Wastewater Treatment and Reclamation Plant (WTRP). The system includes 18.8 miles of sewer pipelines ranging in diameter from four to 24 inches, and one lift station located on Crinella Drive. The WTRP has a permitted average dry weather flow design capacity of 0.5 million gallons per day (MGD). The City currently has a population of about 5,500 residents.

The City's Sewer System Management Plan (SSMP) was initially developed in 2006 to comply with requirements of a 2005 Order from the San Francisco Regional Water Quality Control Board (Regional Water Board). The SSMP was revised several times to comply with a State Water Resources Control Board (State Water Board) Order and subsequent amendments. The SSMP complies with Provision D.13 of State Water Board Water Quality Order (WQO) 2006-0003 Sanitary Sewer System Waste Discharge Requirements (WDR) and the associated Monitoring Reporting Program (MRP). This latest version of the SSMP, Version 8, includes recommendations from Regional Water Board 2021 Collection Systems Inspection findings as well as from internal SSMP audits performed in 2014, 2016, 2019, and 2022.

It should also be noted that, in December 2022, the State Water Board adopted a revised WDR, which will become effective in June 2023. Over the following months, the City will review the WDR and determine what changes, if any, are needed to bring its SSMP in compliance with the revised regulation.

1. Goals

1 Goals

The City of St. Helena's goals include the proper management, operation, and maintenance of all parts of the wastewater collection system, adequate capacity to convey peak flows, minimizing frequency of Sanitary Sewer Overflows (SSOs), and mitigating the impact of SSOs.

2. Organization

2 Organization

The City's organization chart identifies agency staff responsible for implementing, managing, and updating the SSMP. Additionally, it includes the chain of communication for responding to and reporting SSOs. Figure 1 illustrates the organization chart for the City Public Works and roles are further described below.

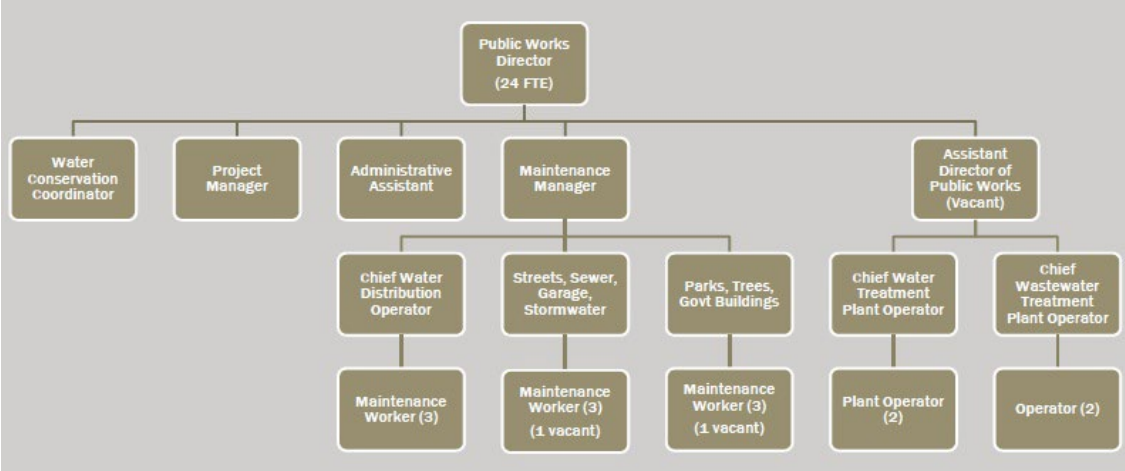


Figure 1. City of St. Helena Public Works Organization Chart

City Council. The Mayor and Council members represent the residents of St. Helena, establish all public policy, and adopt policies responsive to the community. The City Council meets two evenings per month.

- The City Council's role in the SSMP is as follows:
  - Look to the Director of Public Works for reports on any SSOs
  - Make decisions regarding resolution of collection system problems

City Manager. The City Manager is the administrative head of the government of the City of St. Helena responsible for providing general administrative management of the City; providing a liaison between the City Council and Staff; carrying out, on behalf of the City Council, its policies, rules, regulations and laws; supervising the preparation of the annual budget; and overseeing the preparation of council agendas and material for Council Meetings.

City Clerk. Provides information updates to City Council and arranges for emergency meetings if necessary.

- The City Clerk's role in the SSMP is as follows:
  - May, at times, receive phone calls regarding SSOs
  - Arrange for emergency meetings, if necessary

Director of Public Works (Director). Implement City Council policy, establishes departmental policy, plans strategy, leads staff, allocates resources, delegates responsibility, authorizes outside contractors to perform services, and may serve as public information officer. Prepares wastewater collection system planning documents; manages capital improvement delivery system; documents new and rehabilitated assets; and coordinates development and implementation of SSMP.

The Director is legally responsible for monitoring, compliance and reporting associated with the City's National Pollutant Discharge Elimination System (NPDES) permit, the State Department of Health Services water purveyor permit, transportation and commercial trucking permits, surface mining reclamation, the safety of the City's two dams and reservoirs and their operations, and is the City's primary point of contact with the ecological, environmental, and other water quality and water rights regulatory agencies.

The Director plans, bids, manages and monitors all Capital Improvement Projects (CIP) for each of the Department of Public Works' functional divisions. For private (non-City) projects, the City Engineer or City Surveyor are responsible for the review of tentative and final parcel and subdivision maps, improvement agreements, inspection of privately-constructed public improvements, review of use permits, review and approval of all encroachment permits, staff for the Tree Committee, monitoring of mitigation measures, safety issues of all City facilities, staffing of Napa County Transportation Planning Agency and Water Resources Planning Committee. DPW Administration personnel attend and participate in each Planning Commission and City Council meeting.

- The Public Works Director's role in the SSMP is as follows:
    - Prepares wastewater collection system planning documents
    - Coordinates development and implementation of the SSMP
    - Reports SSOs to City Council
    - Works with Sewer System Supervisor to resolve and report SSOs
    - Works with Sewer System Supervisor to implement fats, oils, and grease program, and other special collection system programs.

Public Works Operations Manager. Under general supervision from the Director of Public Works, manages the operation services of the streets, storm drain, garage, facilities, wastewater collection, water distribution, and parks maintenance services. Exercises direct supervision over public works supervisors in those divisions, as well as professional, technical and support staff of operations. Performs a wide variety of professional, administrative, human resources, analytical and management support within assigned program areas; develops, implements and administers assigned program responsibilities, including budget preparation, financial management, reviews and processes invoices, conducts research; performs other related duties as required.

- The Operations Manager's role in the SSMP is as follows:
    - Assists Director with management of SSMP
    - Receives reports of SSOs
    - Works with Sewer System Supervisor to resolve and report SSOs

- Works with Sewer System Supervisor to implement fats, oils, and grease program, and other special collection system programs.

Underground Utilities Superintendent. Under general direction from the Director and Operations Manager, supervises, evaluates and participates in the work of crews responsible for construction, repair, maintenance and operational work in the Sewers operational unit of the Public Works Department; ensures safe work practices, work quality and accuracy; maintains appropriate work records which may include time cards and work orders; serves as a technical resource for assigned work crews, Operations Manager, and the Director; performs other related duties as required.

- The Underground Utilities Superintendent's role in the SSMP is as follows:
  - Manages field operations and maintenance activities
  - Provides relevant information to Operations Manager
  - Leads emergency response
  - Works with Operations Manager and Director to report SSOs to the State
  - Trains field crews
  - Works with Operations Manager and Director to implement fats, oils, and grease program, and other special collection system programs.

Collection System Operation Team. Under the supervision of the Underground Utilities Superintendent performs field operations and maintenance activities, provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, and investigates and reports SSOs. Performs preventive maintenance activities, mobilizes and responds to notification of stoppages and SSOs (mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators).

- The Collection System Operation Team's role in the SSMP is as follows:
  - Perform preventative maintenance activities
  - Respond to stoppages and SSOs
  - Report equipment needs to Sewer System Supervisor

The names and contact information for each person in the positions described above are kept on file at the Public Works office. The information is updated on an on-going basis as personnel changes are made.

3. Legal Authority

3 Legal Authority

This section demonstrates the City's legal authority to control infiltration and inflow (I/I) and to require proper construction, testing and inspection of their sewer system.

The City's Sewer Service System Ordinance, Chapter 13.20 of the Municipal Code, includes information on sewer charges, use of funds, rules for annexation to the municipal sewer, prorated charges for line extensions, installations of adequate capacity, compulsory connections, and standard sewer construction details and specification adoption procedures. Additionally, the City's Wastewater Discharge Ordinance, Chapter 13.24 of the Municipal Code, includes prohibitions on discharges, storm drainage, ground water, unpolluted water, and limitations on radioactive wastes, use of garbage grinders, point of discharge, holding tank waste, and wastewater strength. The Wastewater Discharge Ordinance also includes provisions on wastewater volume, administration, user charges and fees, enforcement, abatement, and grease traps. In January/February 2023, the City will be updating the Municipal Code to require the responsibility of ongoing ownership and maintenance of sewer laterals (both on private property and within the public Right-of-Way) lie with property owners. The City's entire Municipal Code is available online at www.codepublishing.com/CA/StHelena.

4. Operation and Maintenance Program

4 Operation and Maintenance Program

4.1 Collection System Map

A map of the City's collection system is maintained and updated periodically based on the Underground Utilities Superintendent's guidance. The map was updated in November 2014 and closed-caption television (CCTV) inspections of the collection system were completed in May 2015. The collection system map is accessible to City staff in both hard copy and electronic formats. The current collection system map contains the following information:

- Manhole ID numbers
- Manhole locations with reference to streets and property lines
- Line size and direction of flow
- Force main size and direction of flow
- Private lines and direction of flow
- Cleanouts
- Lampholes
- Pump stations
- Wastewater treatment plant
- Rivers/creeks

Subsequent versions of the map will include the following additional information:

- GPS coordinates
- Manhole rim elevations
- Manhole invert elevations
- Material types
- Worker safety information
- Pipe slope
- Date built
- Pipe invert elevations

4.2 Prioritized Preventive Maintenance

The City completed an Inflow/Infiltration (I/I) Analysis in July 2000 (attached) and a Sewer Flow Isolation Study in the spring of 2007 (attached). Additionally, the City completed an Integrated Utility Master Plan (IUMP) in April 2021.[1] The I/I Analysis recommended that the City use smoke testing, flow isolation, manhole inspections, and source defect/cost benefit analyses to reduce the amount of I/I entering the system during wet weather. The Sewer Flow Isolation Study assessed nighttime flows at 32 manhole locations to identify areas of excessive apparent infiltration. Based on this evaluation, subsequent manhole and CCTV inspections were recommended and the City is using this information to prioritize system rehabilitation. Additionally, previous manhole surveys and system CCTV efforts (see attached examples) are evaluated to prioritize maintenance activities.

[1] Available at: www.cityofsthelena.org/sites/default/files/fileattachments/public_works/page/2491/cosh_utility_master_plan_final_draft.pdf

The City's Underground Utilities Division maintains a *Sanitary Sewer Maintenance Report* which is updated each time maintenance work is performed on a line (see attachments). Sewer line maintenance is performed as necessary. The City has a planned schedule for cleaning sewer lines that are highly susceptible to root intrusion, grease, and various debris. The frequency of cleaning a sewer line is determined by the cleaning history needs, with the goal of preventing sewer line blockage and overflows. Areas with previous SSOs caused by grease or roots are reviewed more frequently to ensure that the same problem does not occur again.

The City does not use chemicals for root control in the collection system. Instead, sewer lines are cleaned through other means, using the following equipment:

	**Rodder** The Rodder is used to remove roots, heavy grease, and other obstructions from inside the sewer lines by quickly rotating a hydraulically driven continuous steel cable rod with a cutting blade or saw attached to the leading cable.
	**Hydro** The Hydro cleans grit and grease accumulated from sewer mains with water pressure, scouring the inside of the pipes. The Hydro is used primarily for cleaning sewer lines that have the highest potential for blockage, mostly due to grease being discharged into the sewer lines. These areas are described as "hot spots".

4.3 Rehabilitation and Replacement

The overall goal of the City's SSMP is to maintain the collection system and prevent SSOs. Currently, 80% of collection system inspections are in response to a problem and 20% are routine inspections in areas which have previously had a problem. Every Friday, all 'hot spots' manholes are visited. The Underground Utilities Division completes the attached *Sanitary Sewer Work Sheet* when performing inspections. Additionally, all manholes are visited systematically.

The City completed a five-year program to CCTV the collection system in May 2015. As a result of this program, pipe lining and repair work was performed in the residential area surrounding and tributary to the Crinella Lift Station. This work was completed in 2015/2016 and is expected to reduce infiltration and inflow, along with the probability of SSOs in that area.

As a result of the IUMP, the City will be conducting "Phase 1" cleaning, CCTV and smoke testing during 2023 and funded via General Obligation Bond approved by City residents in June 2022.

The City's Underground Utilities Division maintains a *Sanitary Sewer Maintenance Report* which is recorded each time maintenance work is performed on a line (see attachments). Sewer line maintenance is performed as necessary. The City has a planned schedule for cleaning sewer lines that are highly susceptible to root intrusion, grease, and various debris. The frequency of cleaning a sewer line is determined by the cleaning history needs, with the goal of preventing sewer line blockage and overflows. Areas with previous SSOs caused by grease or roots are reviewed more frequently and routine maintenance is conducted bi-monthly.

The Wastewater Enterprise Fund budget is used to ensure adequate resources are available to maintain and upgrade the City's collection system. The budget includes funding from the following sources:

- Wastewater Enterprise. Used for day-to-day operations, maintenance, and repair of sewage collection and treatment activities associated with the City's wastewater system.
- Wastewater Capital Projects. This funds the costs for capital projects that upgrade, improve, or repair/replace portions of the wastewater collection and treatment system.
- Wastewater Impact Fees. This funds the costs for wastewater collection and treatment system capital projects that are needed to serve new development.

The total annual operating budget for wastewater operations is approximately $1,000,000. The City's goal is to replace 1% of its sewer mains annually, through $150,000 earmarked annual expenditure.

The City's current 5-Year Capital Improvement Plan covers Fiscal Years 2022/2023 through 2026/2027 and dedicates $19,000,000 to wastewater projects. The majority of these funds are earmarked for critical WWTRP upgrades that will be complete in 2023. The CIP is reviewed and updated annually, based on current priorities and funding availability. Current and past CIPs are available online at www.cityofsthelena.org/publicworks/page/capital-improvement-plan-cip.

It should be noted that the City will be adopting a user rate increase in Q1 2023 for implementation on July 1, 2023. The updated rate structure will fund additional "high priority" and systematic pipeline replacement efforts.

4.4 Training

The "Training Sign-In Form" (attached) is used to keep a log of staff attendance at training events. The Collection System Operation Team is required to participate in several trainings per year.

The City offers the following formal and informal trainings:

- *Technical training*: Training sessions are scheduled periodically by the Chief Wastewater Treatment Plant Operator to address training on routine O&M activities. Most training is completed as on-the-job training, where knowledgeable staff trains less experienced staff on the O&M of equipment.
- *Skills training* (for equipment use and maintenance tasks): Staff members learn on the job without the use of standard O&M procedures. If new equipment is purchased, the supervisor requests that the manufacturer offer an informational training on the proper use of the equipment.
- *Safety training*: Safety meetings are conducted by the supervisor, who selects topics based on needs of staff. American Water Works Association videos are also available.

Through participation with Bay Area Clean Water Agencies (BACWA), the City developed a fact sheet educating plumbers and sewer contractors on preventing SSOs and informing the City if work in private laterals may cause issues in sewer main downstream (attached). This fact sheet is distributed to all plumbers and building contractors who perform work in the City's service area.

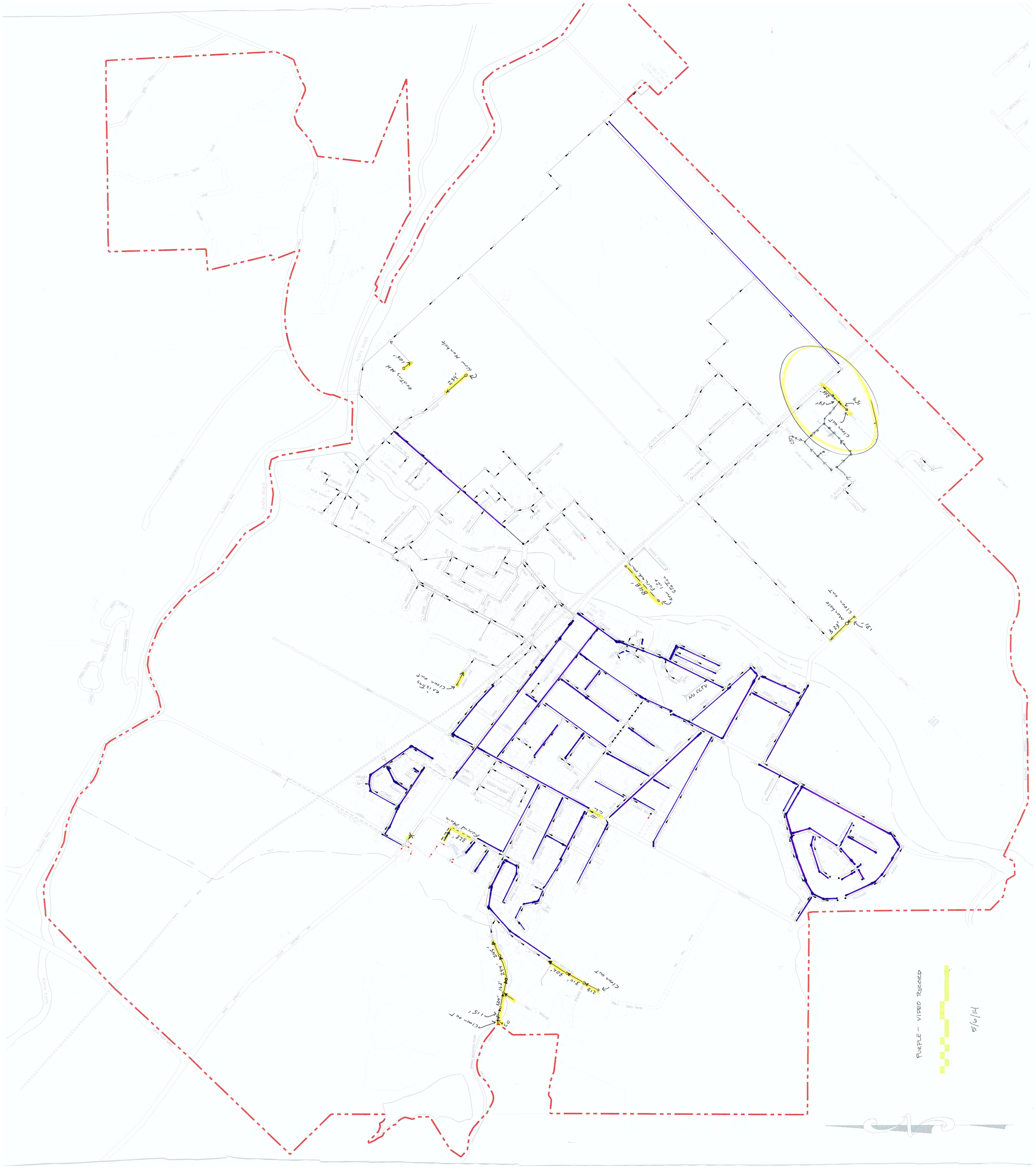
4.5 Contingency Equipment and Replacement Inventories

Recent equipment purchases include updated CCTV inspection camera with internal components, addition of trailer mounted CCTV sewer inspection trailer, and a vacuum excavator purchased in 2018.

4. Operation and Management Program

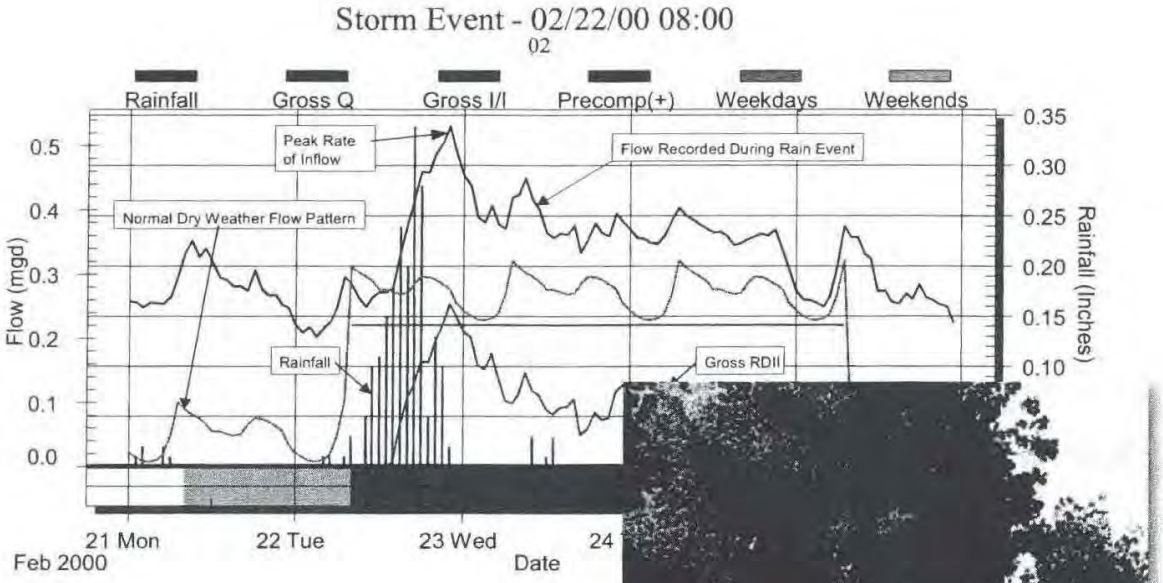
Attachments

Collection System Map


PURPLE - VIDEO RECORD
5/14/25

Infiltration/Inflow Analysis (2000)

INFLOW / INFILTRATION ANALYSIS





Prepared For:

THE CITY OF ST. HELENA

July 6,2000

Prepared By:

ADS Environmental Services
3830-A Charter Park Drive
San Jose, CA 95136
(408) 448-2315

ADS ENVIRONMENTAL SERVICES®

August 5, 2004

CITY OF ST. HELENA
AUG 06 2004
Department of Public Works

Bob Kyle
City of Saint Helena
1480 Main Street
Saint Helena, CA, 94574

Re: 2000 ADS RDII Analysis Report

Dear Mr. Kyle,

ADS Environmental Services is pleased to have the City of Saint Helena (City) as a primary client in the Northern Californian area. ADS makes every attempt to provide the City with the most accurate and up-to-date information concerning the wastewater flow system. We take great pride in providing our clients with the best-trained flow monitoring staff in the flow monitoring business.

Please find enclosed a CD containing the report we completed for you in 2000 as requested. The results listed in the report are final. The scattergraphs for Appendix D I had to generate from the only data set we could locate.

One note of caution is that I am not sure if the data we located and I have provided to you in the scattergraphs and in Excel format is the final data set. If the Excel data is to be fed into a model it should be done with caution. If you would like me to review the data set to ensure it is the final one, I am certainly able to do so, but we would have to quote a price for the time required for me to complete the review. I apologize for this inconvenience.

Please do not hesitate to contact me at the ADS Huntington Beach office on (714) 379 9778, if you have any further questions or require any further flow metering services.

Sincerely
ADS ENVIRONMENTAL SERVICES

Gillian Woodward, P.E.
Senior Civil Engineer

AN AXEL JOHNSON INC COMPANY
15205 Springdale St, Huntington Beach, CA, 92647 • Phone: 714-379-9778 • Fax: 714-379-9588

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1 PROJECT SUMMARY AND RECOMMENDATIONS

ADS Environmental Services performed an Inflow & Infiltration (I/I) analysis in the City's sanitary sewer collection system. This report contains a summary of the flow monitoring data collected, the study methodology, and the subsequent I/I analysis. A hydraulic and capacity analysis was also performed based on the flow monitoring data.

1.1 Project Objectives

The objective of this I/I study was to quantify the amount of Rainfall Dependent Inflow and Infiltration (RDII) entering sub-basins (Basins) within the collection system. Then, these Basins were to be prioritized based on the amount of RDII entering each; with recommendations provided to locate and quantify specific defects that allow the extraneous flow to enter the system.

1.2 Project Scope of Work

The scope of work for the I/I Study included the following tasks:

- Develop flow Basins and identify possible monitoring locations.
- Investigate flow monitoring sites.
- Install temporary flow monitors at proposed locations.
- Perform flow monitoring for a period of one week during the dry weather period and for a period of four weeks during the wet weather period.
- Quantify RDII, and make recommendations for further action based on the flow monitoring data collected

1.3 Basin Flow Analysis

The flow monitoring study consisted of dividing the collection system into discrete Basins and simultaneously monitoring the discharge of each Basin during both a wet and the dry weather period. The flow data was used to calculate the amount of RDII entering each Basin.

The collection system was divided into a total of six (6) Basins; which were comprised of nine (9) flow monitoring sites (monitored using ADS Model 1500 open channel flow monitors). A flow schematic of the Basins is provided in Chapter 2. Two (2) tipping bucket rain gauges were also used to measure the volume and intensity of each rainfall event. Rainfall and flow data was collected at 15-minute intervals for the entire duration of the project.

Flow and rain monitoring was performed during the following two periods:

- Dry Weather: September 11, 1999 through September 21, 1999
- Wet Weather: February 5, 2000 through March 7, 2000

The average daily flows were calculated for each Basin for both the dry and wet weather periods. A comparison of the dry weather flows and wet weather flows during the largest volume storm event (Storm No. 1) is presented graphically in Figure 1.1.

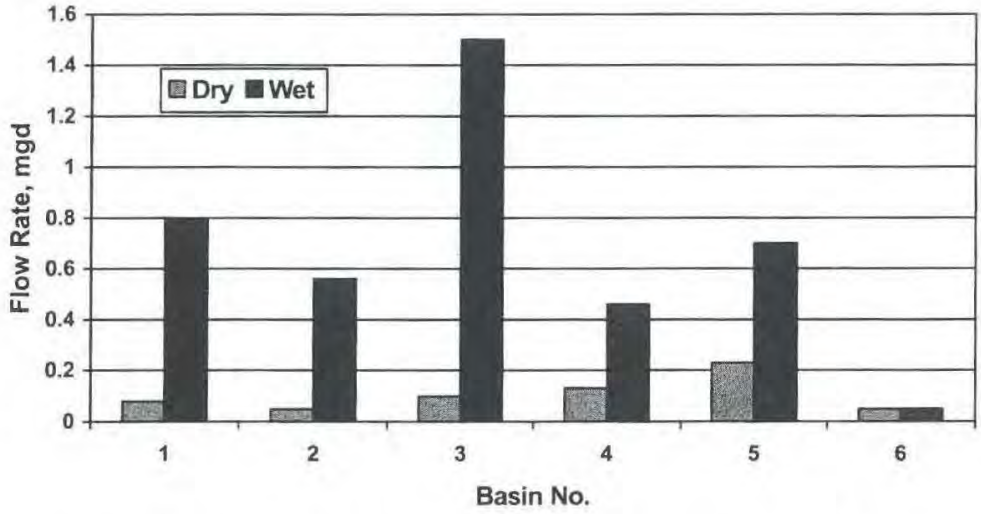


Figure 1.1 - Average Daily Dry Vs Average Daily Wet Weather Flows

As shown in Figure 1.1, wet weather had varying effects on each of the Basins. In Basin No. 6 for example, the average-day wet weather flow was nearly equivalent to the

average-day dry weather flow. Conversely, in Basin No. 3, the average-day wet weather flow was about fifteen (15) times higher than the average-day dry weather flow.

1.4 RDII Analysis

Net RDII was calculated for each Basin by subtracting average dry weather flows from wet weather flows and compensating for pre existing infiltration. The Basins were then normalized by dividing the net RDII by the total number of inch diameter-miles of pipe within each Basin. The RDII was further normalized by dividing each Basin's computed net RDII for each storm by the inches of rainfall observed during the storm. A summary of the normalized RDII for each Basin (two-storm average) is presented in Figure 1.2.

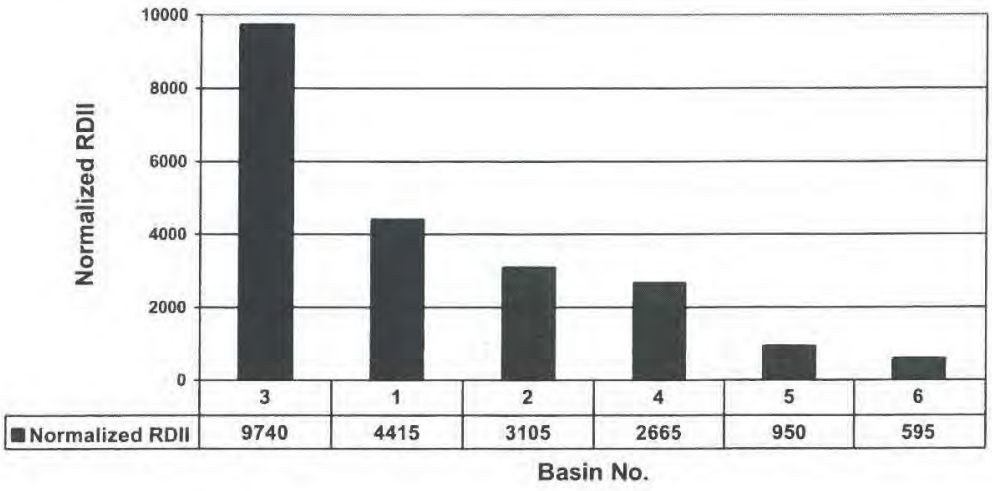


Figure 1.2 – Normalized RDII (gal / idm-inch rain)

As shown in Figure 1.2, the Basins with the highest normalized RDII (averaged over two storm events) were Basins 3 and 1. These Basins accounted for about 68% of the total study RDII normalized volume (in total gallons per inch of rain). RDII in Basins 2 and 4 was slightly below the average for the study Basins and accounted for about 23% of the study RDII volume. RDII in Basins 5 and 6 was less than 1/3 of the study

average normalized RDII and accounted for only about 9% of the total study RDII volume.

1.5 Hydraulic Analysis

A hydraulic analysis was performed at each flow monitoring location using gross flows to evaluate the pipeline in the immediate area around the flow monitor. The basis of this evaluation was to compare the peak-hour wet flow to average-day dry flow ratios and to compare the depth-of-flow to the diameter (d/D) of the pipe.

The peak-hour wet to average-day dry flow ratios (peaking factors) were graphed and are presented in Figure 1.3.

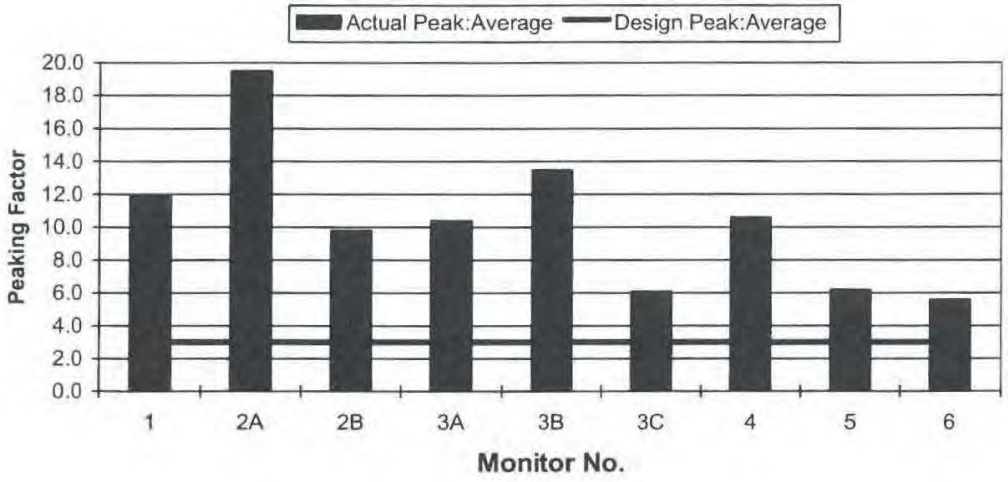


Figure 1.3 - Peak to Average Ratio (Actual Vs Typical Design)

As shown in Figure 1.3, the gross flow peaking factors in the immediate vicinity of the flow monitors ranged from 5.6 to 19.5. All of the pipelines associated with the monitors exhibited flow peaking factors that exceeded 3.0 (which is commonly used as a design peaking factor). Therefore these pipelines may be exceeding design capacity.

The d/D ratio was graphed for each pipeline associated with the monitors and is presented in Figure 1.4.

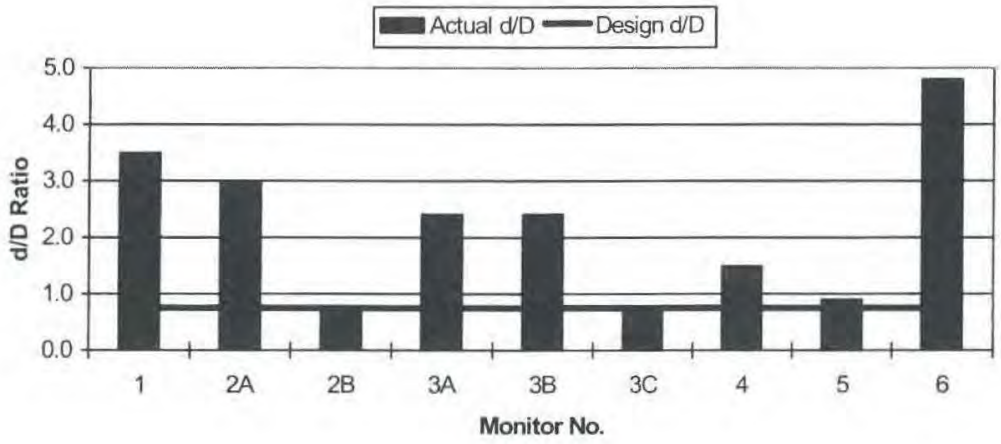


Figure 1.4 - d/D Ratio Vs Typical Design

Sewers are commonly designed to handle a d/D ratio of 0.75 at peak flows. The graph in Figure 1.4 shows that the d/D ratio during the study period exceeded 0.75 for flow monitoring sites 1,2A, 3A, 3B, 4, 5, and 6. In fact, five of these sites exceeded a d/D ratio of 2.0, which means the pipeline was in significant surcharge conditions with wastewater traveling up the manhole. This indicates that the pipelines in the immediate area of the flow monitors listed above were experiencing backup conditions and may be exceeding design capacity during these periods.

1.6 Recommendations

Based on the RDII analysis, it is recommended that the following short and long term projects be considered.

1.6.1 Short Term Recommendations:

- Perform Smoke Testing on Basins 1, 2, and 3.
- Perform flow isolations on Basins 1, 2, 3, and 4.

- Conduct T.V. and manhole inspections based on results of smoke testing and flow isolations.
- Perform a source defect/cost benefit analysis based on the results of the manhole inspections and T.V. inspections.
- Begin to rehabilitate defects based on cost benefit analysis.

1.6.2 Long-Term Recommendations:

- Implement long-term flow monitoring. This will help gauge the success of any future rehabilitation work.
- Implement comprehensive infrastructure management system.

2 PROJECT APPROACH

Rain Dependent Inflow and Infiltration (RDII) consists of extraneous water that enters a sanitary sewer system during or just after a storm event. Inflow is typically described as water that directly enters a system through roof leaders, clean-outs, foundation drains, sump pumps, and cellar, yard, and area drains. Infiltration is typically described as water that enters a sewer system from the ground through defective pipes, pipe joints, damaged lateral connections, or manhole walls.

Most collection systems have been designed to convey some quantity of RDII. Excessive RDII however, can have the following impacts on a collection system:

- Reduced collection system capacity
- Increased probability of sanitary sewer overflows.
- Increased treatment and transport costs.

The most cost effective means of identifying, quantifying, and prioritizing RDII entering a collections system is through a comprehensive RDII study comprised of the following major components:

1. Collection system review and Basin identification.
2. Simultaneous flow monitoring and rain gauging.
3. Data analysis and Basin prioritization.
4. Sanitary Sewer Evaluation Surveys (SSES) including smoke testing, manhole inspection, flow isolation, dye water flooding, closed circuit television, etc.

ADS conducted tasks 1 through 3 of the above RDII study; each of which are discussed in detail in this report.

2.1 Basin Identification

ADS reviewed the City St. Helena sanitary sewer collection system maps. The study area was divided into six (6) separate Basins using nine (9) flow monitors. A map depicting the topographic Basin boundaries is shown in Figure 2.1.

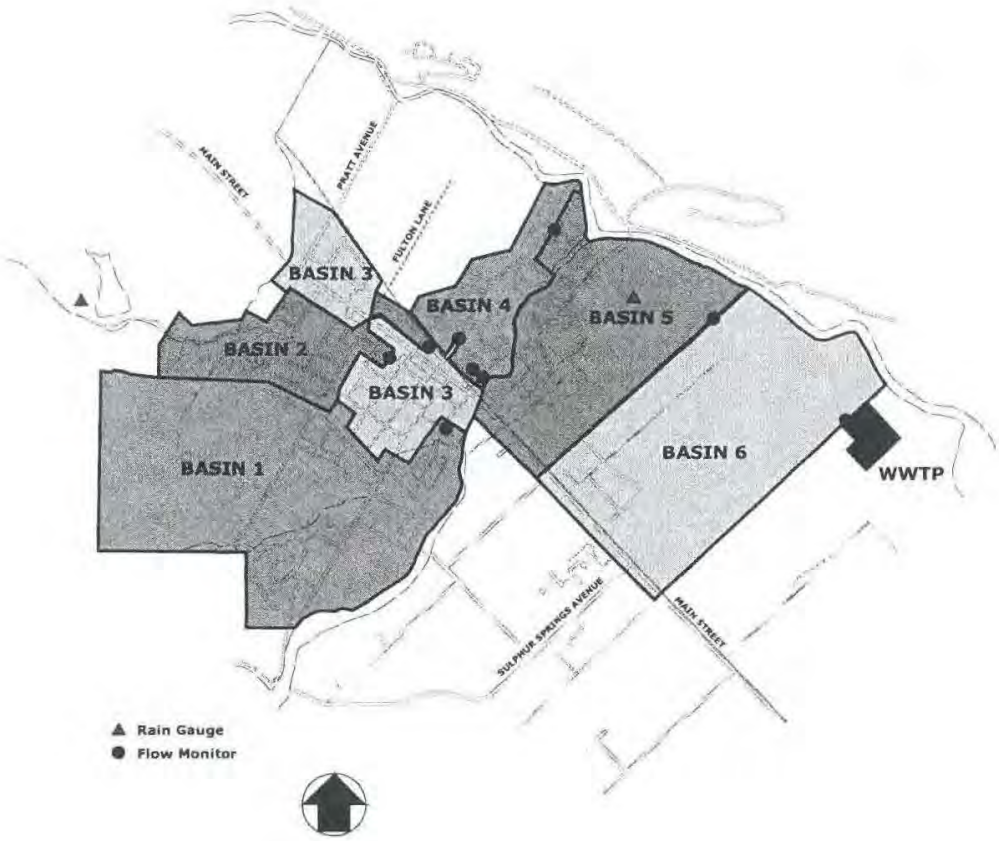


Figure 2.1 – Basin Map

A flow schematic of the monitoring locations and Basins indicating direction of flow is shown in Figure 2.2

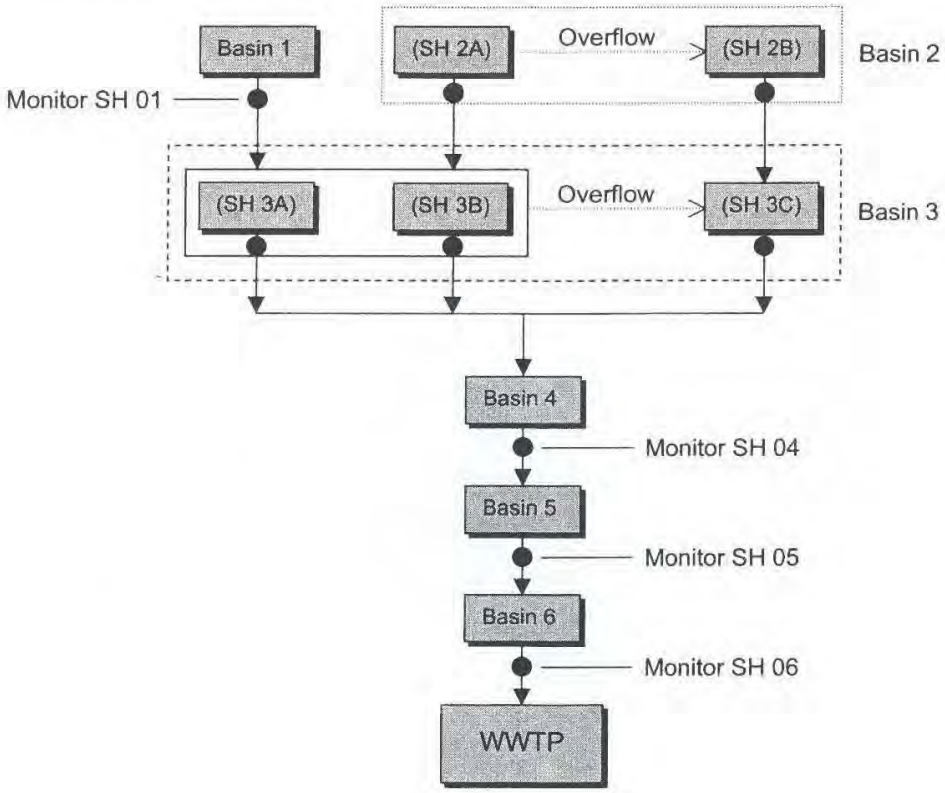


Figure 2.2 – Flow Schematic

Basin 1 was hydraulically independent, while the remaining Basins were hydraulically isolated by adding gross sub-basin (e.g. 2A, 2B, etc.) monitor flows, then subtracting measured gross inflow from measured gross outflow of each Basin according to the flow schematic in Figure 2.2. These Basins were considered as the performance units for purposes of conducting the RDII data analysis and evaluation. The Basins and Basin characteristics are listed in Table 2.1 below along with the basis of hydraulic isolation of each.

Table 2.1
Basin Summary

Basin #	Basis of Hydraulic Isolation	Length of Pipe (lf)	Inch-Miles (in-mi)
1	SH 01	18,020	22.75
2	SH 2A + SH 2B	15,820	19.02
3	SH 3A + SH 3B + SH 3C - (SH 01 + SH 2A + SH 2B)	21,645	25.78
4	SH 04 - (SH 3A + SH 3B + SH 3C)	13,430	23.50
5	SH 05 - SH 04	13,590	25.38
6	SH 06 - SH 05	16,900	39.61

The individual Basin parameters (linear footage of pipe, inch-miles, and Basin drainage areas) presented in Table 2.1 were obtained from the maps and electronic files provided by the City of St. Helena.

2.2 Flow Monitoring Equipment

The monitor used for this project was the ADS Model 1500 open-channel flow monitor. This flow monitor consists of depth and velocity sensors and a battery powered microcomputer. The microcomputer includes a processor unit, data storage, and an on-board clock to control and synchronize the sensor recordings. The monitor was programmed to acquire and store depth of flow and velocity readings at 15-minute intervals. A laptop computer was used in the field to retrieve and store data from each flow monitor.

The ADS Model 1500 uses depth and velocity measurements to calculate the wetted area and average velocity of the wastewater in the pipe. The Continuity Equation (Q=V*A) is then used to calculate flow.

2.3 Installation

Installation of the flow monitoring included the following four steps:

- Site investigation
- Installation of equipment
- Monitor Start-up
- Monitor calibration

A typical Model 1500 flow monitor installation is shown in Figure 2.3.

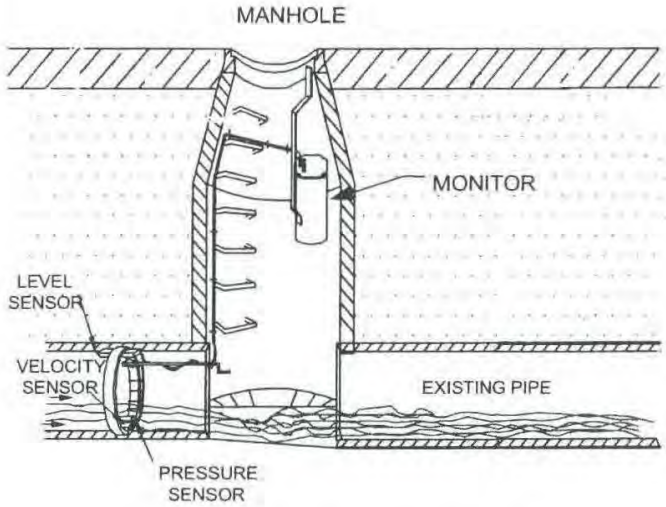


Figure 2.3 – Typical Installation

The installation presented in Figure 2.3 is typical of the configuration used for this study and is customarily used on circular or oval pipes up to approximately 42-inches in diameter or height. In this type of installation, depth and velocity sensors are mounted

on an expandable ring and installed one to two pipe diameters upstream of the pipe/manhole connection in the incoming sewer pipe. This reduces the affects of turbulence and backwater.

2.4 Data Collection, Calibration, and Quality Assurance

During the monitoring period, field crews visited each monitoring location on a weekly basis to retrieve data, verify proper monitor operation, and document field conditions. The following general quality assurance steps were taken to assure the integrity of the data collected:

- **Measure Power Supply:** The monitor is powered by a dry cell battery pack. Power levels are recorded and battery packs replaced, if necessary. A separate battery provides back-up power to memory, which allows the primary battery to be replaced without the loss of data.
- **Perform Pipe Line Calibrations and Confirm Depth and Velocity:** During initial and final site visits (at a minimum), a field crew member descends into the manhole to perform a field measurement of flow rate, depth and velocity to confirm they are in agreement with the monitor. Since the ADS V-3 velocity sensor measures peak velocity in the wetted cross-sectional area of flow, velocity profiles are also taken to develop a relationship between peak and average velocity in the line.
- **Measure Silt Level:** During initial and final site visits, a member of the field crew descends into the manhole and measures and records the depth of silt at the bottom of the pipe. This data is used to compute the true area of flow.
- **Confirm Monitor Synchronization:** The field crew checks the flow monitor's clock for accuracy.
- **Upload and Review Data:** Data collected by the monitor is uploaded and reviewed for comparison with previous data. All readings are checked for

consistency and screened for deviations in the flow patterns, which indicate system anomalies or equipment failure.

2.5 Rain Gauges and Rainfall Data

An important part of an RDII study is the collection and analysis of rainfall data (volume and distribution). The rainfall data is the basis for determining the RDII in each Basin being studied. A chart of rainfall during the study is presented in Figure 2.4.

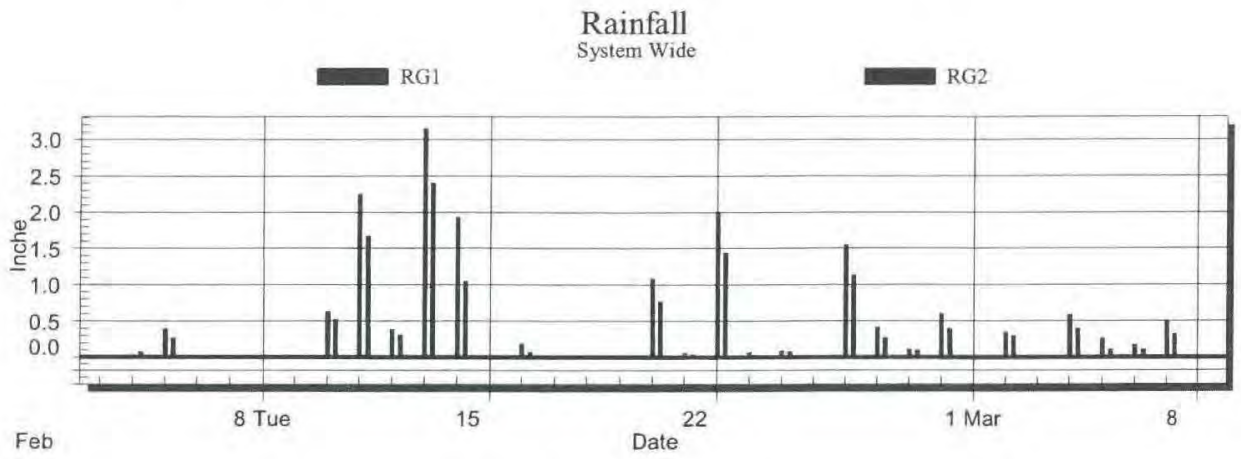


Figure 2.4 – Rainfall Chart

Wet weather data was evaluated for the two (2) largest volume rain events. These particular events were chosen because they were significant (i.e. greater than 1.0 inch, lasted more than 5-hours) and were followed by little or no measurable rainfall for 3 days.

For this study, two rain gauges were located in the City of St. Helena for the duration of the study period. Rain gauge #1 was located by the water tank on Spring Mountain Road near the Lookout Reservoir. Rain gauge #2 was located at the pump station off College Avenue.

The Theissen polygon rain gauge distribution method was used to assign rainfall amounts from each rain gauge to the respective Basins. A bisecting line was drawn between the rain gauges and effective areas represented by each gauge were drawn. Each Basin was assigned rainfall amounts in proportion to the percentage of the Basin area falling within the influence area of each rain gauge. The rain gauge distribution used in this study is indicated in Table 2.2.

Table 2.2
Rain Gauge Weighting for Each Basin

Basin #	% Rain Gauge #1	% Rain Gauge #2
1	90%	10%
2	100%	0%
3	60%	40%
4	0%	100%
5	0%	100%
6	0%	100%

3 BASIN FLOW ANALYSIS

Basins were monitored during a dry and wet period to determine the impact of wet weather on the system. Dry weather flows were monitored for approximately one week from September 11, 1999 through September 21, 1999. Wet weather flows were monitored for four (4) weeks from February 5, 2000 through March 7, 2000.

3.1 Net Dry Weather Flows

Dry weather monitoring took place in September after a long dry period with little or no rain. The net average-day dry weather flow for each Basin is presented graphically in Figure 3.1.

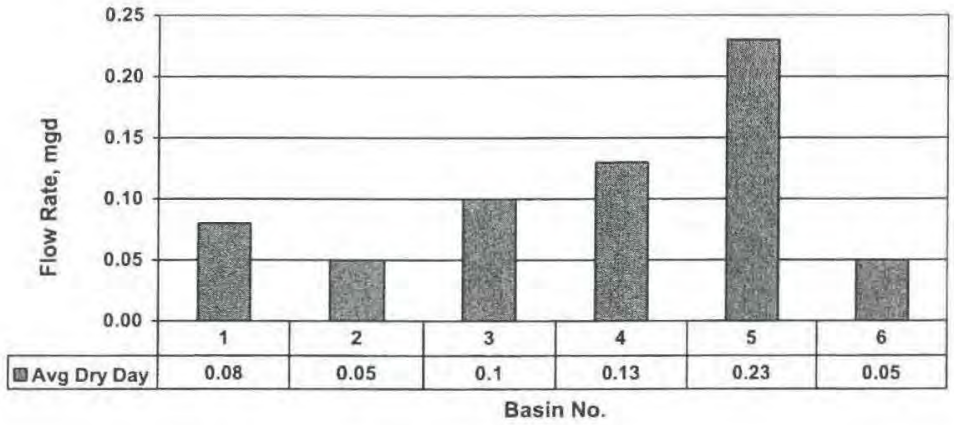


Figure 3.1 – Net Average-Day Dry Weather Flows

As shown in Table 3.1, the average-day dry weather flow ranged from 0.05 mgd which came from Basins 2 and 6 to 0.23 mgd which came from Basin 5. The combined average-day dry flows from all the Basins was 0.64 mgd.

3.2 Net Wet Weather Flow

Wet weather flows were monitored during the month of February and March, 2000 when there were multiple rain events. The storms used in this study including their dates, quantity, and duration are presented in Table 3.1.

Table 3.1
Storm Events Evaluated

Storm #	Date	Rainfall (in)		Duration (hours)
		RG 1	RG 2	
1	2/12/2000	5.22	3.55	48
2	2/22/2000	1.95	1.39	48

3.2.1 Average-Day Wet Weather Flows

To show the impact of these storm events with respect to the net average-day dry weather flow, the average-day wet weather flow (averaged over the two (2) storms) was graphed with the average-day dry flow. This graph is presented in Figure 3.2.

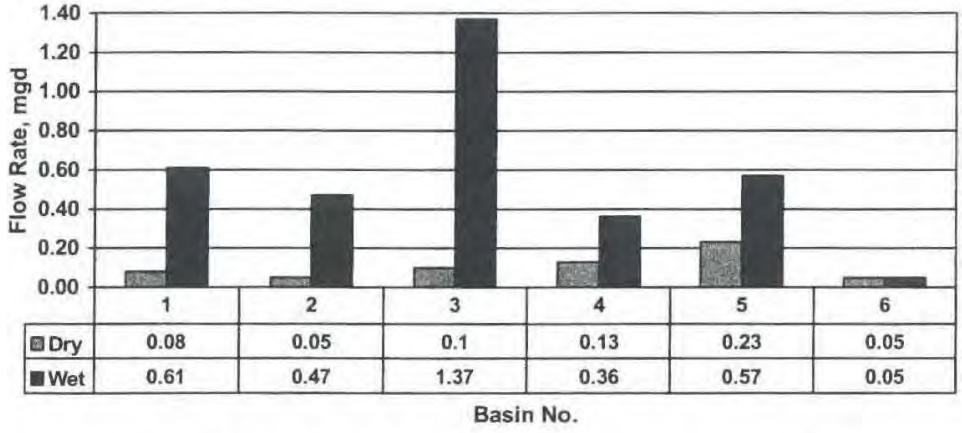


Figure 3.2 – Net Average-Day Dry Vs Average-Day Wet Flows

As shown in Figure 3.2, the average-day wet weather flows were substantially greater then the average-day dry weather flows for Basins 1,2 and 3. This indicates that the rain had a significant effect on average-day flows. To illustrate this further, the ratio of highest average-day wet weather flow to average-day dry weather flow was calculated and is presented in Figure 3.3.

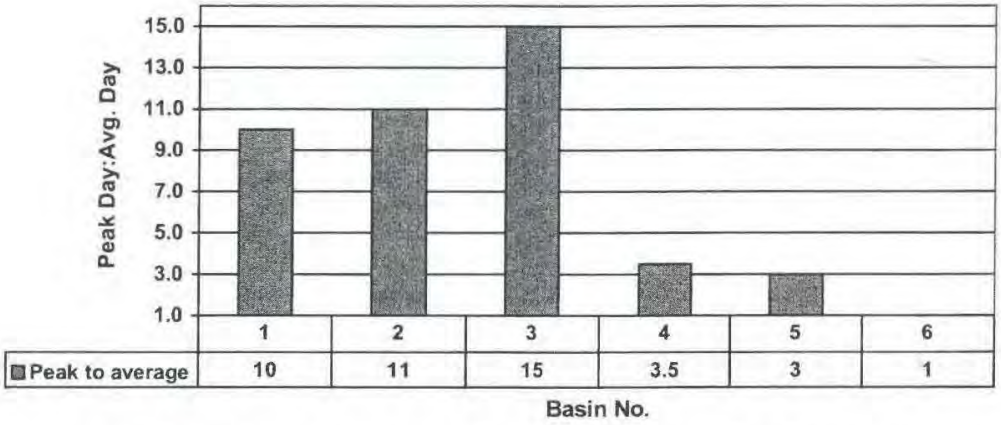


Figure 3.3 – Net Average-Day Wet to Average-Day Dry Ratio

The graph in Figure 3.3 indicates that Basins 1, 2, and 3 greatly exceed a 3:1 ratio for the wet vs. dry daily flows. The WEF manual of Practice FD-6 indicates that an average-day wet weather flow to average-day dry flow ratio that exceeds 2 to 3 is considered significant.

3.2.2 Peak-Hour Wet Weather Flows

Peak-hour wet weather flows were graphed with average-day dry flows and are presented in Figure 3.3.

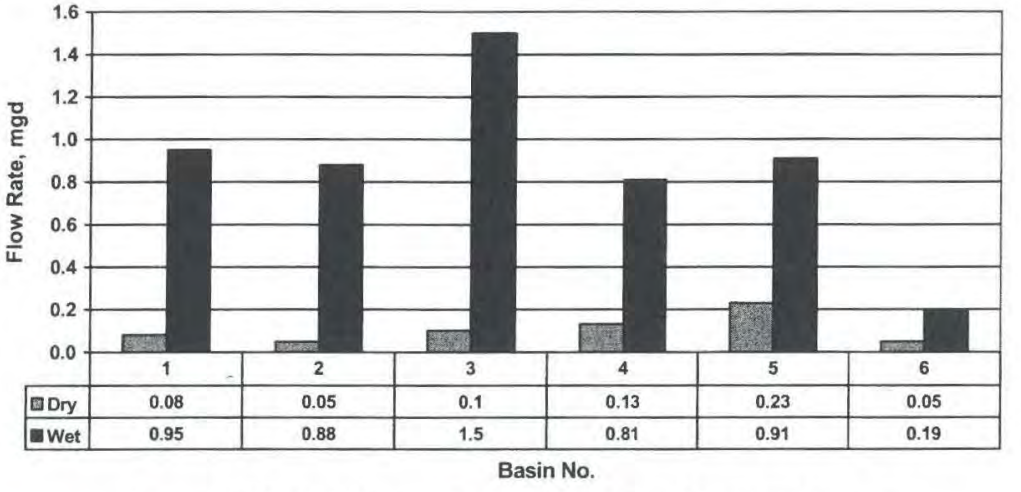


Figure 3.4 – Net Average-Day Dry Vs Peak-Hour Wet Flows

As shown in Figure 3.4, the net peak-hour wet weather flows were substantially greater than the average-day dry weather flows for all of the Basins; with the possible exceptions of Basins 5 and 6. This indicates that the rain had a significant effect on peak-hour wet weather flows. To illustrate this further, the ratio of peak-hour wet weather to average-day dry weather flows were calculated and are presented in Figure 3.5.

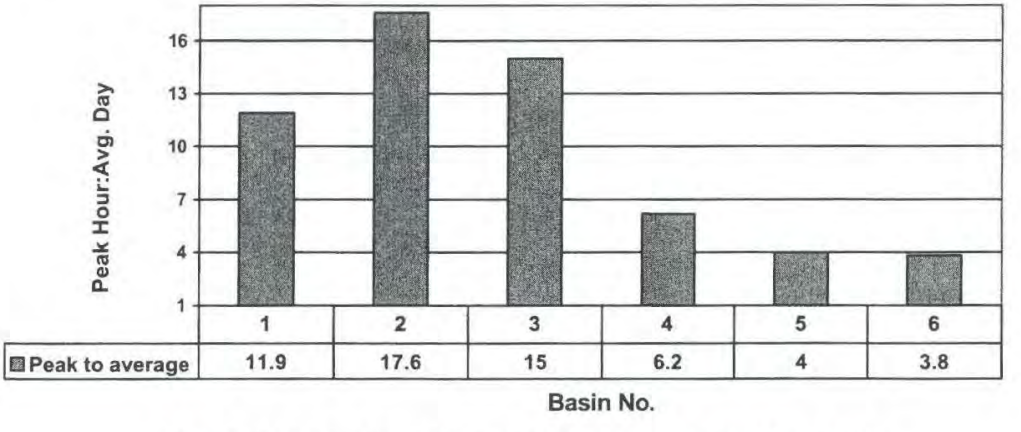


Figure 3.5 - Net Peak-hour Wet to Average-day Dry Ratio

The graph in Figure 3.5 indicates that Basins 1, 2, 3 and 4 exceed a 4:1 flow ratio based on comparing net peak-hour wet weather to net average-day dry weather flows. These ratios may indicate that flow peaking factors are similarly high within portions of the respective Basins. The WEF manual of Practice FD-6 indicates that a ratio that exceeds 3 to 4 is considered significant.

3.3 Net Minimum Flows – Dry vs. Wet Periods

The minimum recorded flows (in the middle of the night – in units of mgd) during the dry period were determined for each Basin and then compared to the minimum flows recorded (in the middle of the night) early into the wet weather study period. The recorded minimum flows for each Basin are summarized in Table 3.2 for both the dry and wet periods along with the percentage increase in recorded minimum flows from the dry period to the wet period.

Table 3.2
Summary of Minumum Recorded Flows
Dry vs. Wet Periods

Basin #	Flow Min. Dry Weather (mgd)	Flow Min. Wet Weather (mgd)	Percent Flow Increase Dry to Wet Weather
1	0.01	0.06	500%
2	0.01	0.11	1000%
3	0.04	0.11	175%
4	0.07	0.12	71%
5	0.11	0.11	0%
6	0.06	0.06	0%

The above data indicates that minimum flows significantly increase in Basins 1, 2, and 3 from dry to wet weather periods. Basin 2 indicated a 10 fold increase in the minimum recorded nighttime flows from the dry to wet weather periods. These data suggest that infiltration comprises a significant portion of the overall RDII volume for these Basins.

4 RDII ANALYSIS

An analysis was performed to determine the quantity of Rain Dependent Inflow and Infiltration (RDII) produced by each Basin in the study. The analysis involved subtracting the net Average Dry Weather Flow (ADWF) from the net Wet Weather Flow (WWF) using an ADS proprietary software called Sli/icer®. Sli/icer® takes into consideration weekday or weekend flows and accounts for infiltration immediately prior to a storm. Compensation for the pre-storm elevated flows is termed precompensation. The process of breaking down the hydraulic impact on a Basin associated with rainfall is termed decomposition. The Sli/icer® output for Basin 2 during the 02/22/00 storm event is depicted in Figure 4.1.

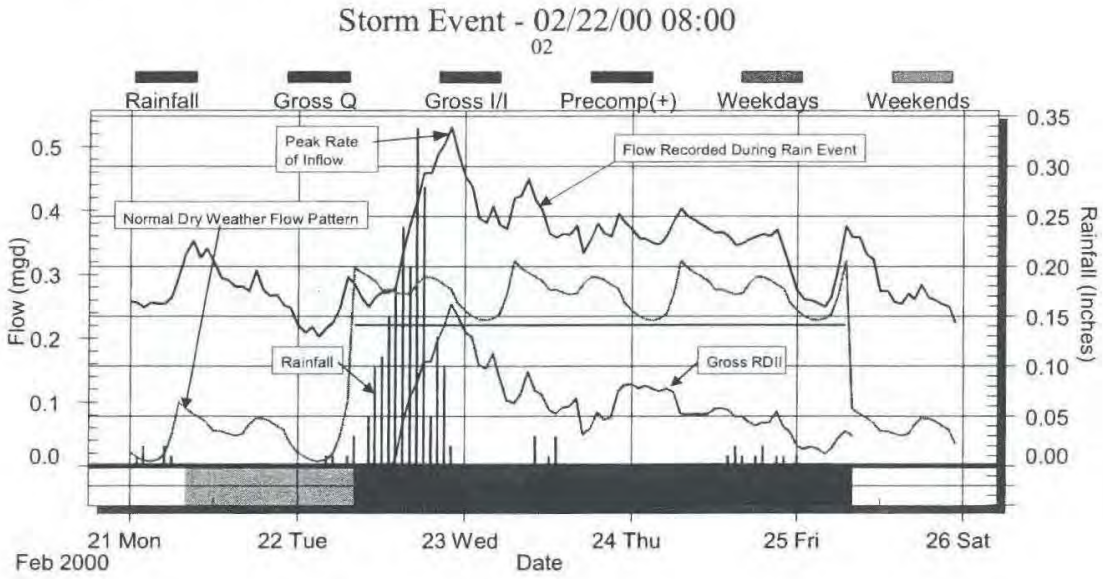


Figure 4.1
Basin 2 Decomposition Hydrograph

The graph in Figure 4.1 shows that Basin 2 produced a significant volume of RDII during the storm event beginning 02/12/00. In Figure 4.1, the gray highlighted time

period prior to the storm period is the period during which precompensation is determined. The light purple period is the storm period. The two darker purple periods following the storm period are the recovery periods R1 and R2. Each of these periods is set at 24 hours in duration unless they are extended or reduced due to factors including longer storm period, short duration to subsequent storms (reduced R1 and R2), and short duration from previous storms (reduced precompensation period).

The Sli/icer® hydrographs for each Basin during the two storm events are included in Appendix A.

4.1 Net RDII Analysis

Net RDII from each Basin was analyzed during each of the two (2) storm events. The RDII was broken down into RDII occurring during the storm event and additional RDII occurring during the recovery periods, R1 and R2. The RDII volume for the storm events was calculated and is presented in Table 4.1.

Table 4.1
Summary of Net RDII per Storm Event

Basin No.	Storm Event 1 (2/12/00)		Storm Event 2 (2/22/00)		Storm Period RDII As a Percent of Total Event RDII
	Net RDII Storm Period (mg)	Net RDII R1 + R2 (mg)	Net RDII Storm Period (mg)	Net RDII R1 + R2 (mg)	
1	0.68	0.37	0.13	0.25	49%
2	0.31	0.05	0.12	0.16	64%
3	1.01	0.54	0.49	–	65%
4	0.15	0.04	0.12	0.33	53%
5	0.11	0.17	0.03	0.04	41%
6	0.05	0.05	0.05	0.25	33%
Sub Tot	2.31	1.22	0.94	1.03	57%
Total	3.53		1.97		

As shown in Table 4.1 Storm No. 1 had the greatest impact in terms of Net RDII. Basins 1, 2, and 3 generally produced the largest quantity of RDII (up to 87% of the

RDII volume during storm 1) and Basins 4, 5 and 6 produced the smallest quantity of RDII.

A review of the net flow responses for each Basin during the study period indicates that both the inflow and infiltration components of RDII are prevalent. Based on the percentages of storm vs. total event volumes in Basins 1, 2, 3 and 4 during storm 1, it appears that the RDII component shifts significantly toward inflow with increasing rainfall volume. It is possible that inflow will predominate in these Basins during any storm of significant volume that is accompanied by saturated antecedent soil conditions (as is the case for storm 1).

The 2-storm average Net RDII (in mg per inch of rain) for each Basin is presented graphically in Figure 4.2.

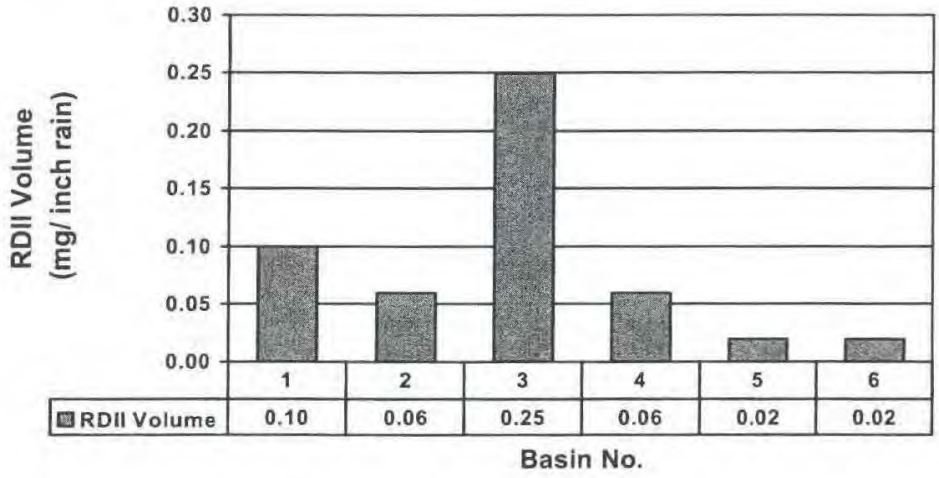


Figure 4.2 – Net RDII Volume (2-storm average)

As shown in Figure 4.2, the net average RDII from the two storm events (in mg per inch rain) ranged from 0.02 mg from Basins 5 and 6 to 0.25 mg from Basin 3. This graph shows that, on average, in excess of 80-percent of the net RDII comes from Basins 1, 2 and 3.

4.2 Q vs. i diagrams

There is generally a linear relationship between volume of rainfall and net RDII in each basin. This correlation between net flows in each Basin to volume of rainfall can be depicted graphically and is termed a Q vs. i diagram. The Q vs. i diagram for Basin 3 is presented in Figure 4.3.

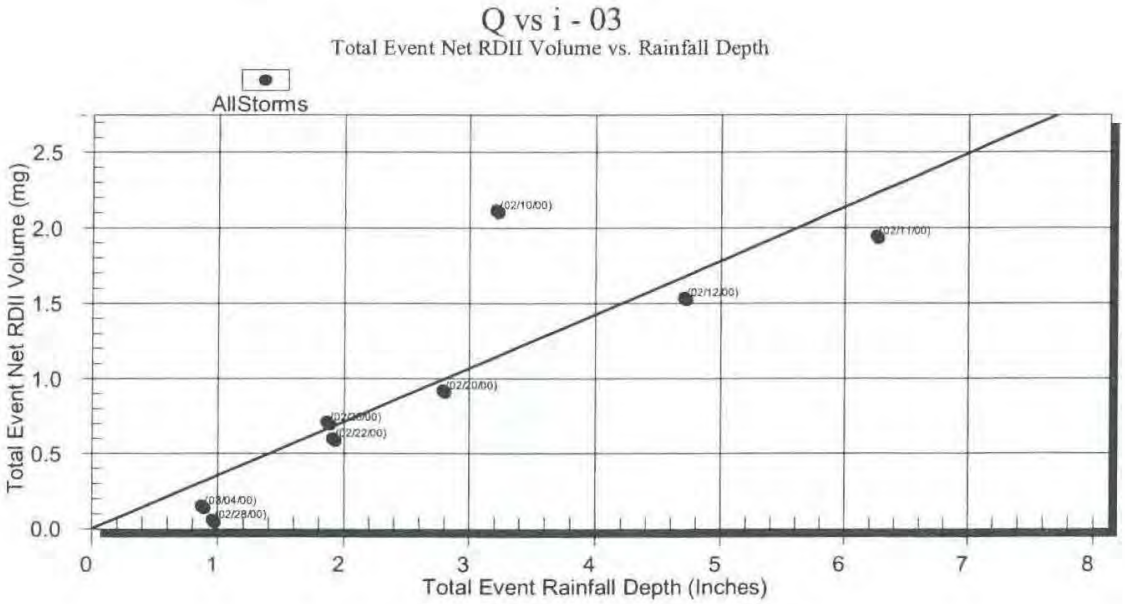


Figure 4.3 – Q vs. i Diagram for Basin 3

The slope of the best fit line fitted to the (Q,i) data points is an indication of how "leaky" the Basin is. In certain cases where the rainfall response in a Basin is low, this linear relationship to increasing RDII with increasing rainfall may be less discernable. This less defined linear relationship is evident for Basins 4, 5, and 6. The Q vs. i diagram is often a very useful tool for determining degree of success of rehabilitation efforts. Q vs. i diagrams for each Basin are included in Appendix B.

4.3 Normalized RDII Analysis

To enable a comparison of RDII between Basins of differing sizes and piping lengths (and diameters), the net RDII volumes for each Basin were also normalized by dividing each Basin's net RDII value by the lineal footage of pipe and average pipe diameter within the Basin to yield RDII values in units of gallons/ inch (diameter)-mile. The RDII values were further normalized by dividing each Basin's computed Net RDII for each storm by the inches of rainfall observed during the storm. This allowed a direct comparison of Net RDII between Basins using a common basis using units of gallons/ inch-diameter per mile per inch-rain. A summary of the normalized Net RDII in each Basin during each storm event is presented in Table 4.2.

As shown in Table 4.2, the normalized RDII ranged from 320 to as high as 10,900. The normalized net RDII values (averaged over the two storm events) for each Basin are depicted in Figure 4.4.

Table 4.2
Summary of Normalized RDII per Storm

Basin #	Normalized RDII (gal/ idm-inch rain)		
	Storm 1	Storm 2	Average
1	5880	2950	4415
2	3130	3080	3105
3	8580	10900	9740
4	1820	3510	2665
5	1210	690	950
6	320	870	595
		Total Average	3578

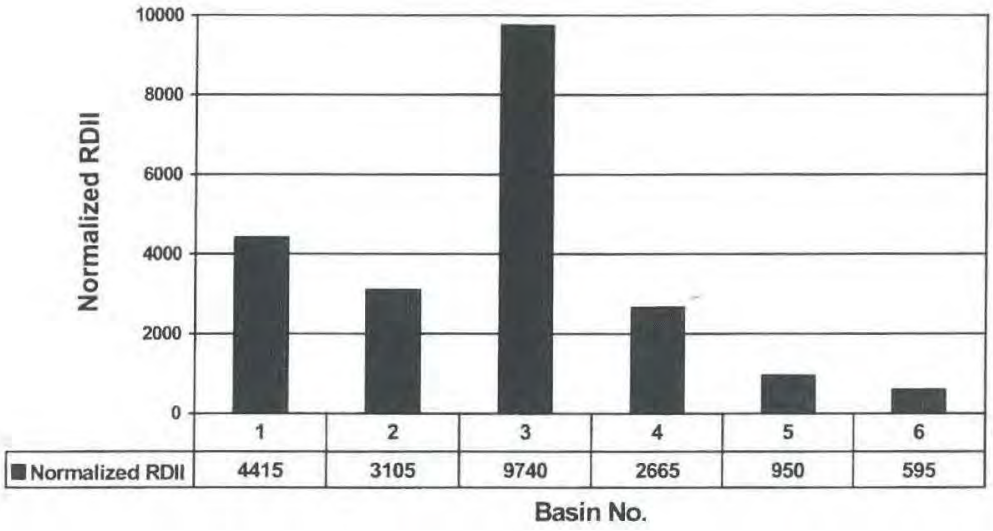


Figure 4.4 – Normalized RDII (gal / idm-inch rain)

As shown graphically in Figure 4.4, Basins 1, 2, 3 and 4 produce the highest normalized RDII on an average basis. It should be noted that these Basins also produced the highest average net RDII volume for the two storms studied.

5 MONITORING SITE HYDRAULIC ANALYSIS

A hydraulic analysis was performed at each flow monitoring site using gross flows to evaluate the pipeline in the immediate area around the flow monitor. The basis of this evaluation was to compare the peak-hour wet to average-day dry ratios and to compare the depth-of-flow to the diameter (d/D) of the pipe throughout the study period.

5.1 Peak-hour Wet to Average-Day Dry Flow Evaluation

The dry and wet weather gross flows were evaluated at each monitor location. These flows were summarized for the study period and are presented in Table 5.1.

Table 5.1
Gross ADWF and WWF Peak Hour

Monitor No.	Gross ADWF Average-day (mgd)	Gross WWF Peak-hour (mgd)
SH 1	0.08	1.0
SH 2A	0.02	0.4
SH 2B	0.05	0.5
SH 3A	0.14	1.5
SH 3B	0.06	0.8
SH 3C	0.14	0.9
SH 4	0.34	3.6
SH 5	0.58	3.6
SH 6	0.62	3.5

Ratios of gross peak-hour WWF to gross average-day dry weather flows were determined from this data. The peak to average flow ratios are presented in Figure 5.1.

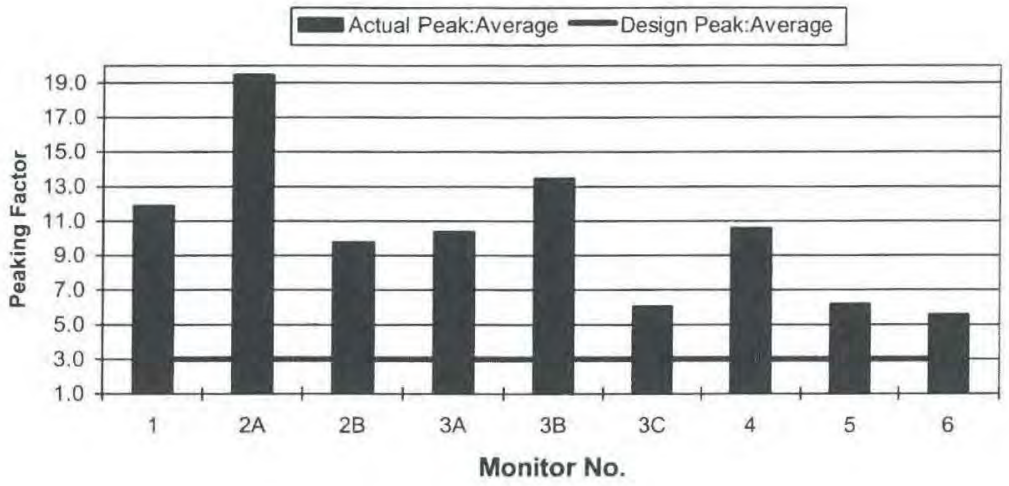


Figure 5.1 - Peak to Average Ratio (Actual Vs Typical Design)

These flow ratios or peaking factors ranged from 5.6 to 19.5. The pipelines associated with all of the monitors exhibited peaking factors that exceeded 3.0 which is commonly used as a design peaking factor.

5.2 d/D Ratio Evaluation

Sewers are commonly designed to handle a depth-of-flow over Diameter-of-pipe (d/D) ratio of 0.75 at peak flows. When 0.75 is exceeded, this may indicate that the pipeline has exceeded its design capacity. To illustrate this, the depth-of-flow hydrograph for flow monitor SH 3A is shown in Figure 5.2.

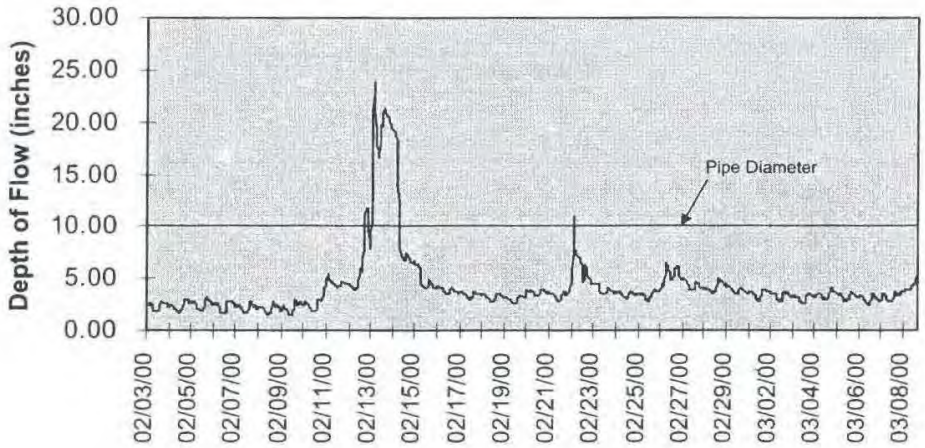
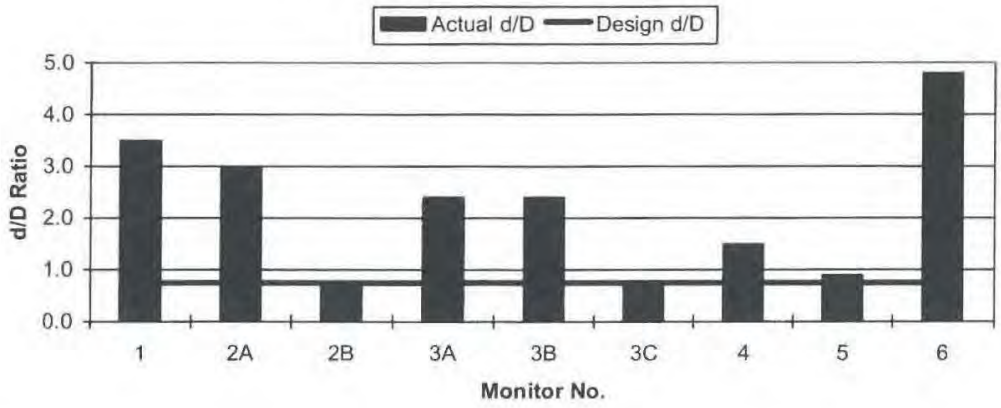


Figure 5.2 – Depth-of-Flow Hydrograph for Monitoring Site SH 3A

The depth-of-flow hydrograph in Figure 5.2 shows that the pipe associated with Monitor SH 3A was surcharged during the largest storm period (storm 1) and very briefly during storm 2. ADS evaluated the depth-of-flow hydrographs for each Basin. . The peak d/D ratios for each monitor location are graphically presented in Figure 5.3.

Figure 5.3 - d/D Ratio Vs Typical Design



The d/D ratio during the study period significantly exceeded 0.75 for flow monitoring sites SH 1, SH 02A, SH 3A, SH 3B, SH 4, and SH 6. In fact for these sites the d/D ratio exceeded 1.0, which means the pipeline was in surcharge conditions with wastewater traveling up the manhole. This may indicate that the pipelines in the immediate area of the flow monitors listed above have exceeded their design capacity due to the backup condition; particularly during the 5-inch storm event on 2/12/00.

Although the Monitor for Basin 6 indicated a high peak d/D condition, the d/D ratio was well within the normal range for the study duration with exception to an apparent backup condition on Friday, 2/11/00, in the evening and again on Saturday, 2/26/00, just before noon. The City may wish to investigate the cause of these isolated backup conditions.

The Depth-of-flow hydrographs for each of the 9 monitoring sites are included in Appendix C.

5.3 Scattergraph Analysis

The flow data for each Basin monitor were reviewed for signs of possible hydraulically anomalous behavior caused by flow restrictions. This included a review of scattergraph

plots of velocity versus depth data points that are instructive in identifying such hydraulic anomalies.

Review of these scattergraphs suggests that possible SSOs may have occurred at or immediately downstream of monitor SH 1 between the evening of 2/13/00 and the morning of 2/14/00 as well as monitor SH 3A in the late afternoon and evening of 2/14/00. This is particularly notable considering that these monitoring sites were among the five sites exhibiting peaking factors in excess of ten (10).

With exception to the above discussed system capacity limitations, no significant hydraulic anomalies (e.g. blockages, displaced pipes, or other unusual hydraulic behavior) were evident based on this review.

The Scattergraphs for each of the 9 monitoring sites are included in Appendix D.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

RDII was evaluated for each Basin during the two primary storm events. The following evaluation parameters were used for this study:

- Basin Peaking Factor
- Basin total volume of RDII per storm event
- Basin normalized RDII (average of 2 storms)
- Basin monitor site hydraulic capacity

The total volume of RDII was provided as a means of determining impact on overall treatment and transport. The net peaking factor, normalized RDII, and d/D parameters were used to priority rank the study basins for future assessment and possible rehabilitation work. A summary of the net Peaking Factor, net RDII, and d/D evaluation parameters is provided in Table 6.1.

Table 6.1
Summary of RDII and Flow Analysis Parameters

Basin No.	Net Flow Peaking Factor	Normalized Net RDII (gal/idm-inch rain)	Peak d/D Ratio
1	11.9	4415	3.5
2	17.6	3105	3.0
3	15.0	9740	2.4
4	6.2	2665	1.5
5	4.0	950	0.9
6	3.8	595	4.8*

*- high d/D likely caused by hydraulic backup condition from downstream

1. Each of the above RDII factors yield Basins 1, 2, and 3 as the highest priority Basins for future evaluation. It is estimated that Basins 1,2 and 3 are contributing about 84% of the study RDII volume while constituting about 36% of the total dry weather flows.

2. Based on evaluating hydraulic capacity (in terms of d/D) of the flow monitoring sites during the largest storm event (5 inches), it appears that flow monitoring sites SH 1, SH 2A, SH 3A and SH 3B are the most susceptible to future SSOs resulting from RDII.

6.2 Recommendations

Based on the analysis discussed above, the City of St. Helena is experiencing significant wet weather inflow and infiltration (RDII) in portions of its sanitary sewer service area. This RDII is causing a reduction in sanitary sewer capacity that could lead to future sanitary sewer overflows.

To reduce the quantity of RDII entering the system, defects must be located and repaired. The process of locating, quantifying and analyzing these defects using a cost benefit analysis is called a Sanitary Sewer Evaluation Survey (SSES). An SSES can include the following:

- Smoke Testing
- Flow Isolations
- Manhole Inspections
- CCTV Inspections
- Source Defect Analysis
- Cost Benefit Analysis

The following SSES work is recommended for the Basins analyzed in this Study and summarized in Table 6.2:

Table 6.2 Recommended SSES				
Basin No.	Smoke Testing	Flow Isolation	Manhole Inspections	Source Defect/ Cost Benefit Analysis
1	X	X	X	X
2	X	X	X	X
3	X	X	X	X
4		X		X
5				
6				

Short Term Recommendations:

1. Perform Smoke Testing on Basins 1, 2, and 3.

   The identified Basins would likely benefit from this type of analysis since the response and recovery signatures of these Basins during rain events suggest inflow is a significant factor influencing overall RDII during heavy rain events. Smoke testing represents a relatively inexpensive means by which to quickly discover often substantial points of inflow caused by factors including but not limited to illegal storm drain connections (e.g. downspouts, area drains, uncapped service lines, faulty manhole seals, illicit catch Basin connections, etc.).

2. Conduct Flow Isolations within Basins 1, 2, 3 and 4.

   This type of analysis helps to isolate segments of Basin piping that are the primary contributors to infiltration. Flow isolations are typically beneficial in Basins suspected of prolonged infiltration or increased base infiltration during the wet season.

3. Conduct T.V. Inspections

   Hydraulically clean and perform T.V. inspections on areas identified as critical during the performance of smoke testing and flow isolations. This task typically consists of examining 10 – 50% of the area previously tested.

Long-Term Recommendations:

1. Conduct Long-Term Flow Monitoring.

   Install permanent (and telemetered) flow monitoring devices to obtain long-term flow data for the purposes of trend analysis, verification of rehabilitation efforts, and to provide the basis for on-going investigations and maintenance efforts. It is recommended that the system be divided into 30,000 to 40,000 linear foot Basins. Consequently, up to three (3) monitors would be required.

   As an option to the installation of permanently installed and telemetered flow monitors, the City could perform comprehensive temporary flow monitoring studies approximately every 2-3 years depending on the amount of rehabilitation performed. This will assist in focusing SSES and rehabilitation efforts on an annual basis.

2. Implement a Comprehensive Infrastructure Management System

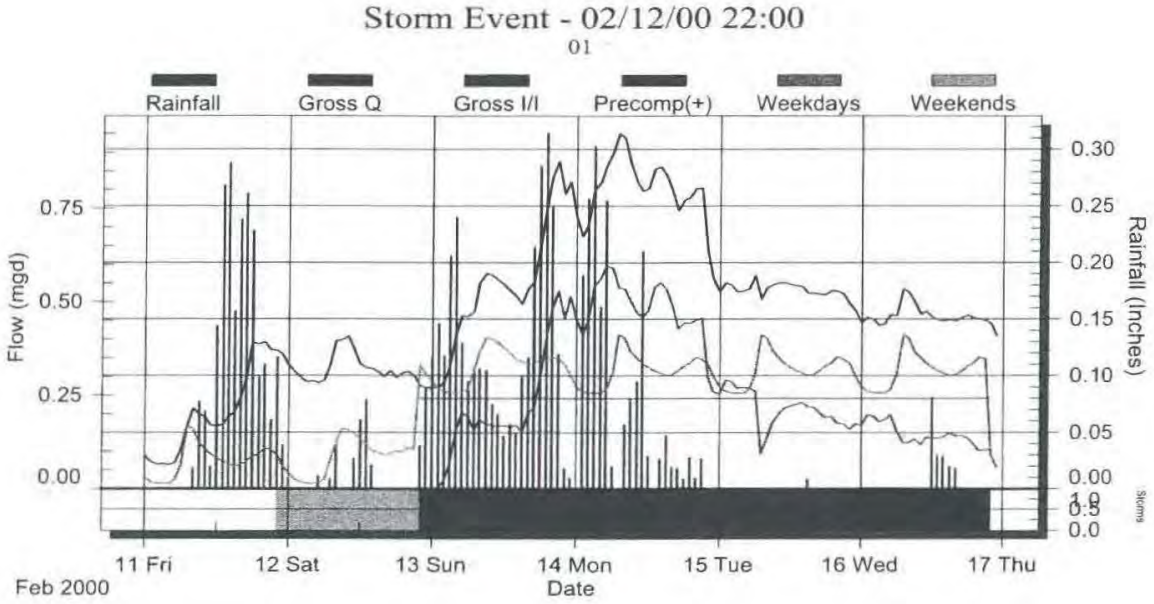
   It is recommended the City obtain an electronic infrastructure management system for tracking inventory, condition assessment of infrastructure, and work order management. This could be the primary tool with which to track collection system rehabilitation success in terms of RDII reduction.

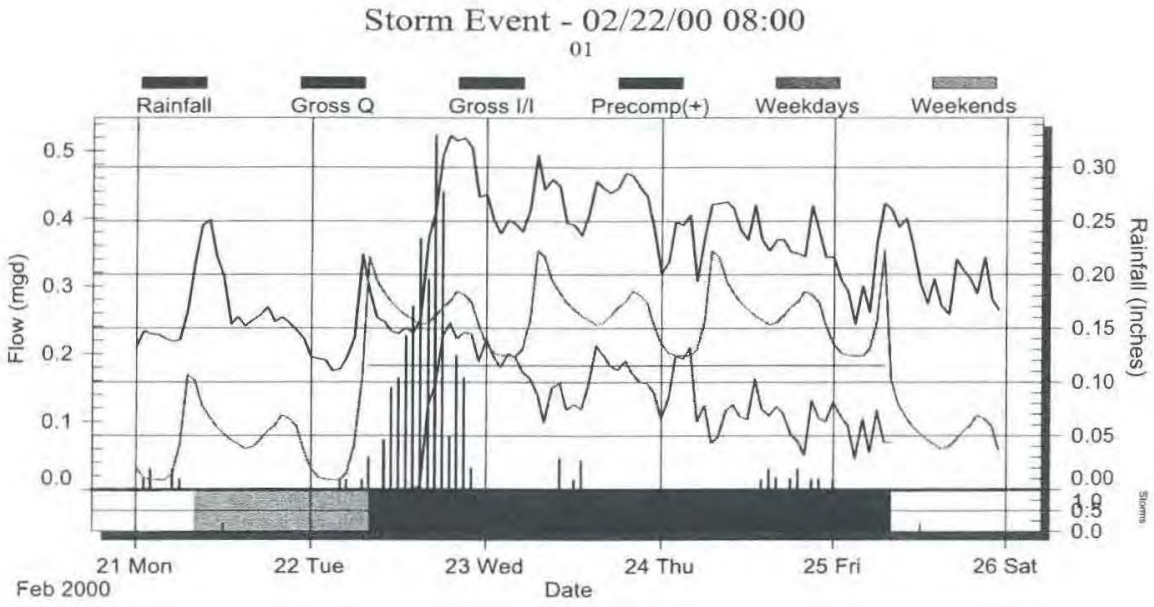
   This type of system can be linked to a GIS system and hydraulic models to assist City personnel in planning, engineering, and maintenance activities.

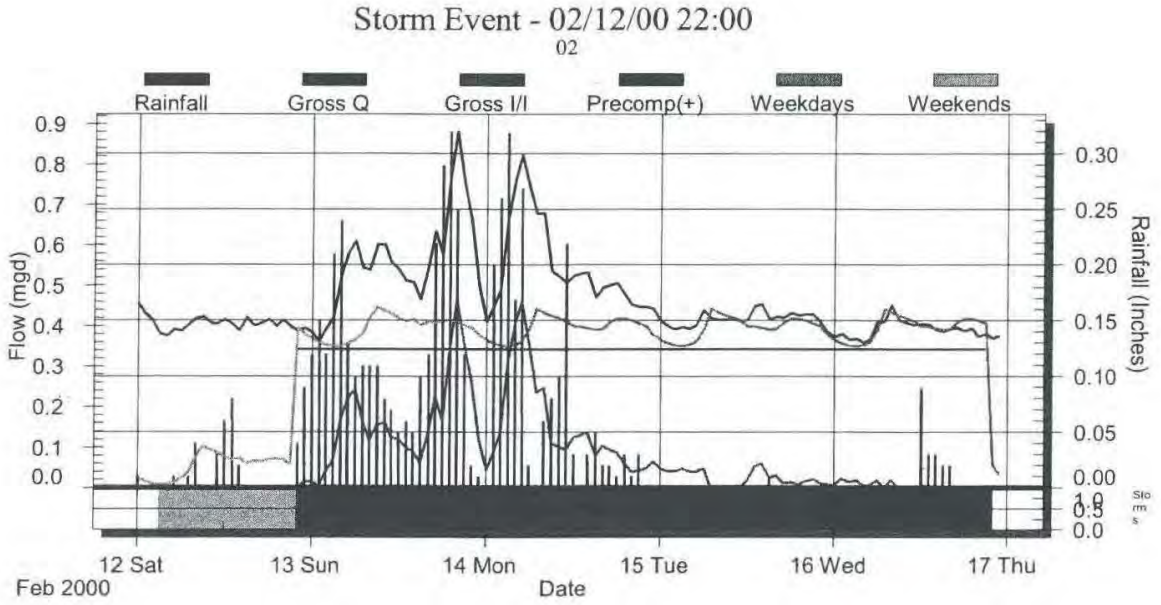
This system could also be expanded to include storm drains, water system, streets, pavement management, signs, parts inventory, and fleet and facility management.

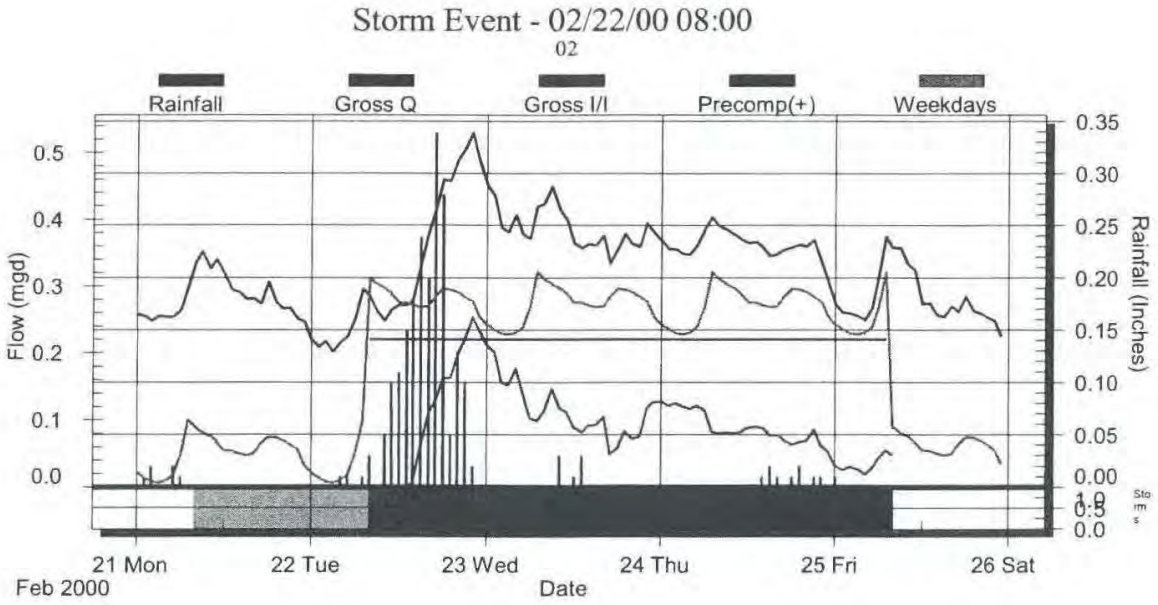
Appendix A

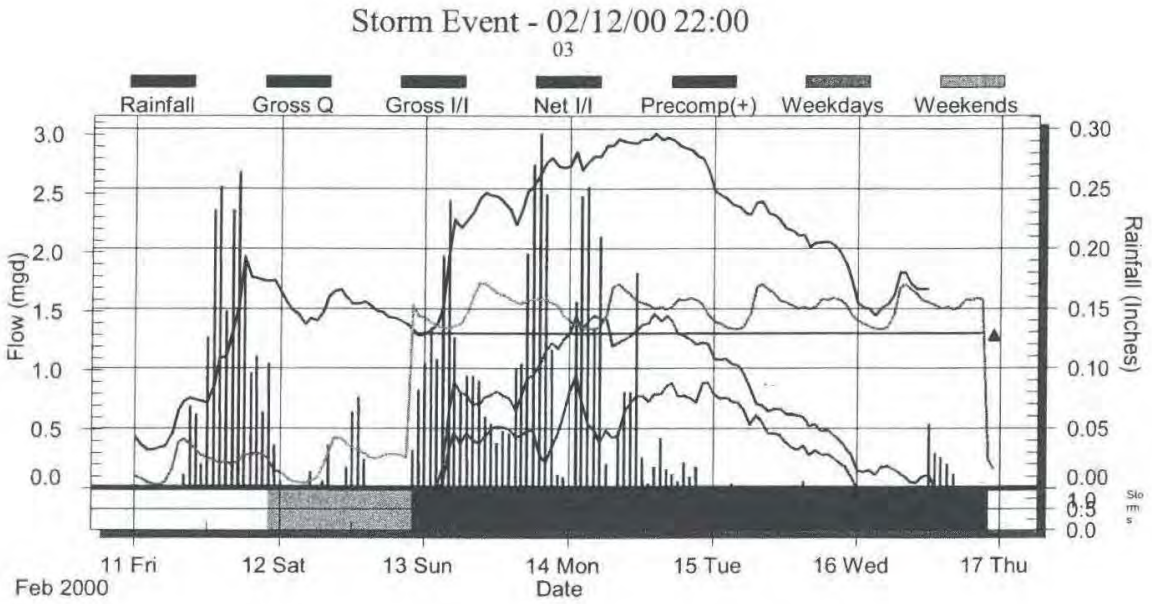
RDII Analysis Sli/i cer® Hydrographs

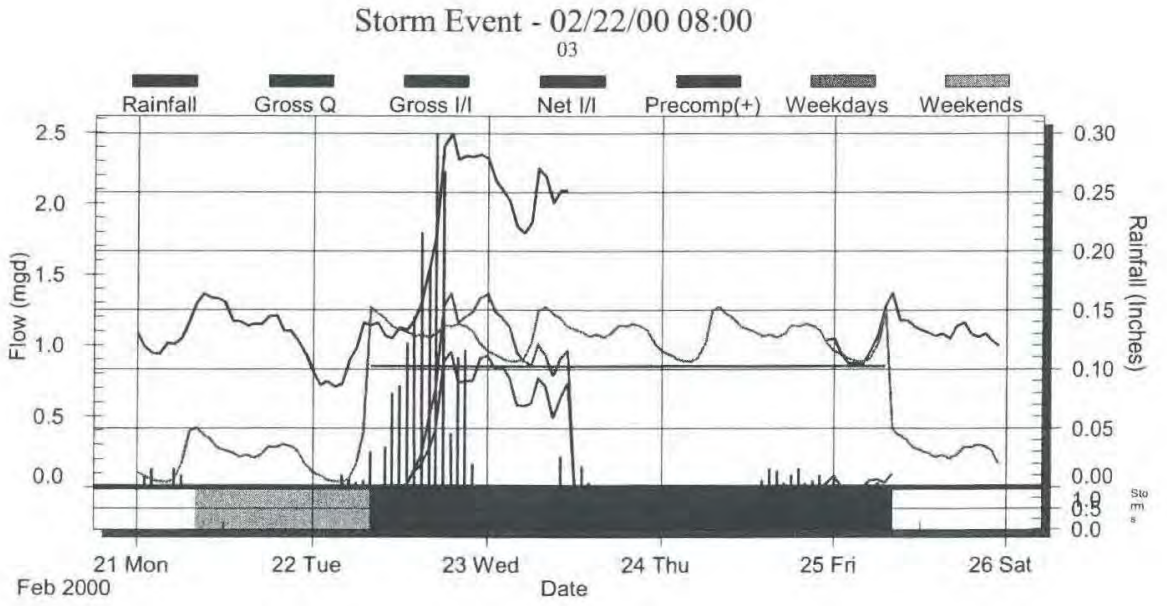

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01
Rainfall
Gross Q
Gross I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
0.75
0.50
0.25
0.00
Rainfall (Inches)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
1.0
0.5
0.0
Storms
11 Fri
12 Sat
13 Sun
14 Mon
15 Tue
16 Wed
17 Thu
Feb 2000
Date

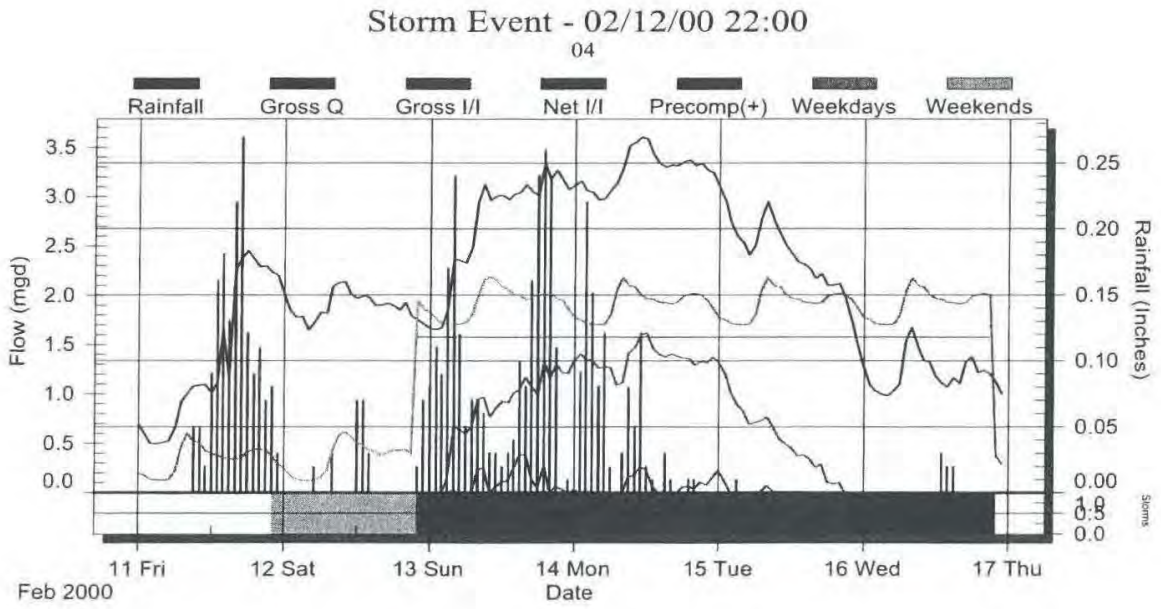

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Gross Q
Gross I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
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0.4
0.3
0.2
0.1
0.0
Rainfall (Inches)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
1.0
0.5
0.0
Storms
21 Mon
22 Tue
23 Wed
24 Thu
25 Fri
26 Sat
Feb 2000
Date

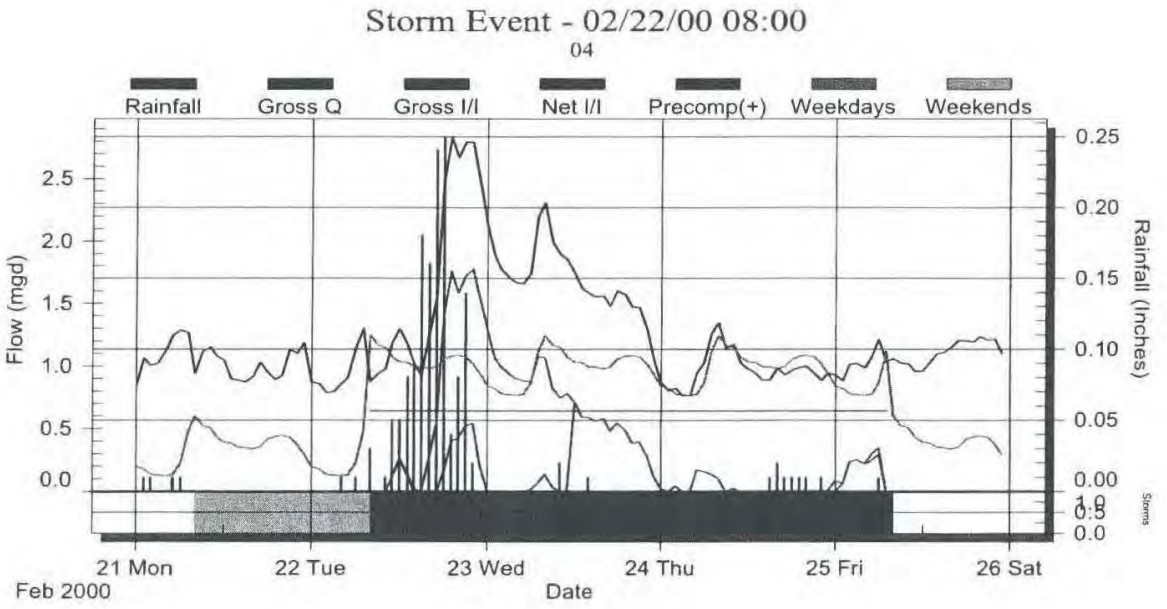

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Gross Q
Gross I/I
Precomp(+)
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Weekends
Flow (mgd)
Rainfall (Inches)
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0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.30
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12 Sat
13 Sun
14 Mon
15 Tue
16 Wed
17 Thu
Feb 2000
Date

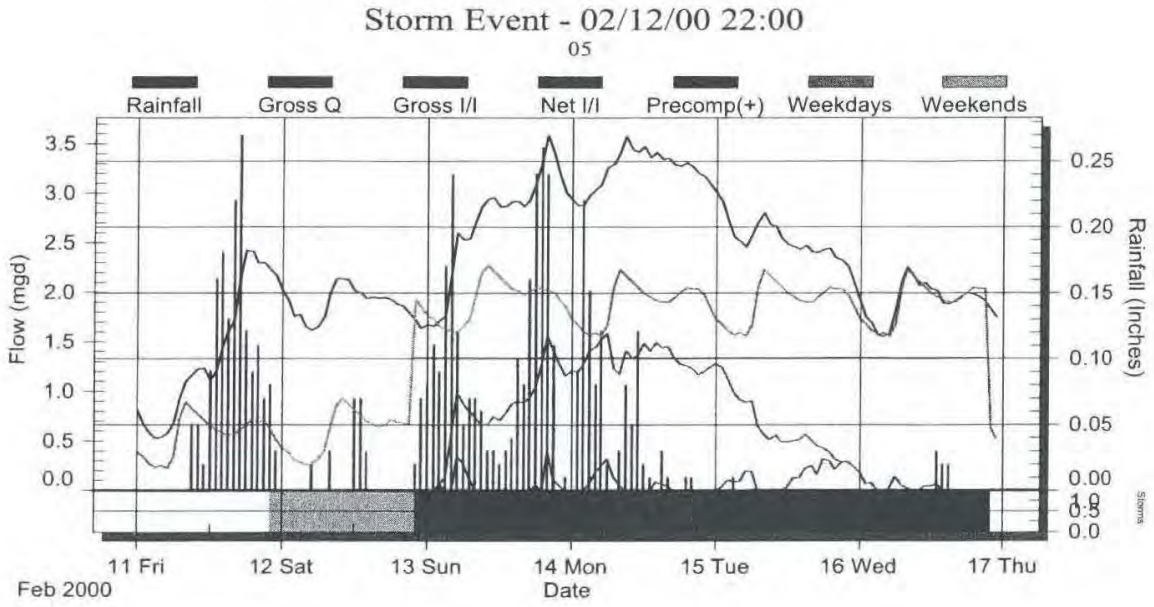

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Rainfall
Gross Q
Gross I/I
Precomp(+)
Weekdays
Flow (mgd)
Rainfall (Inches)
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0.4
0.3
0.2
0.1
0.0
0.35
0.30
0.25
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0.00
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23 Wed
24 Thu
25 Fri
26 Sat
Feb 2000
Date

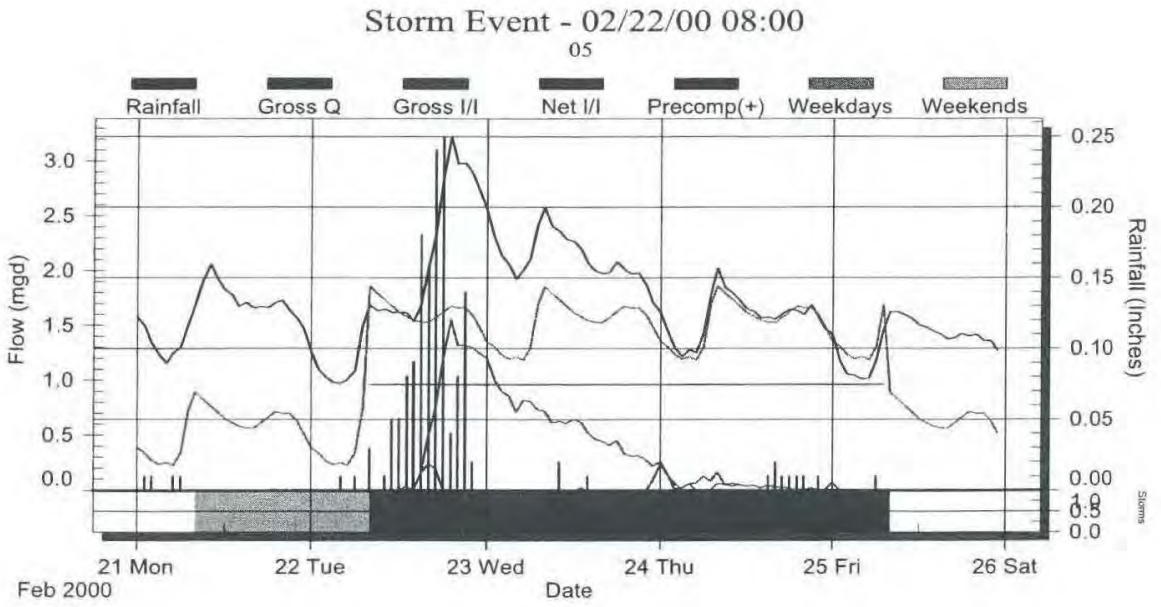

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Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
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2.5
2.0
1.5
1.0
0.5
0.0
Rainfall (Inches)
0.30
0.25
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0.00
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13 Sun
14 Mon
15 Tue
16 Wed
17 Thu
Feb 2000
Date

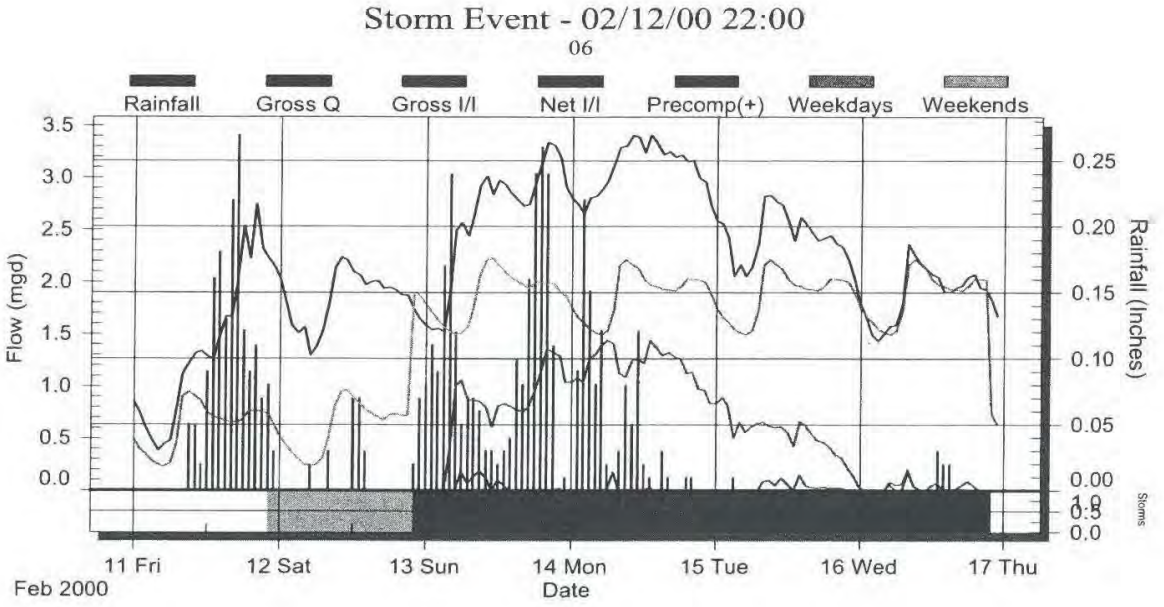

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Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
2.5
2.0
1.5
1.0
0.5
0.0
Rainfall (Inches)
0.30
0.25
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0.00
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Date

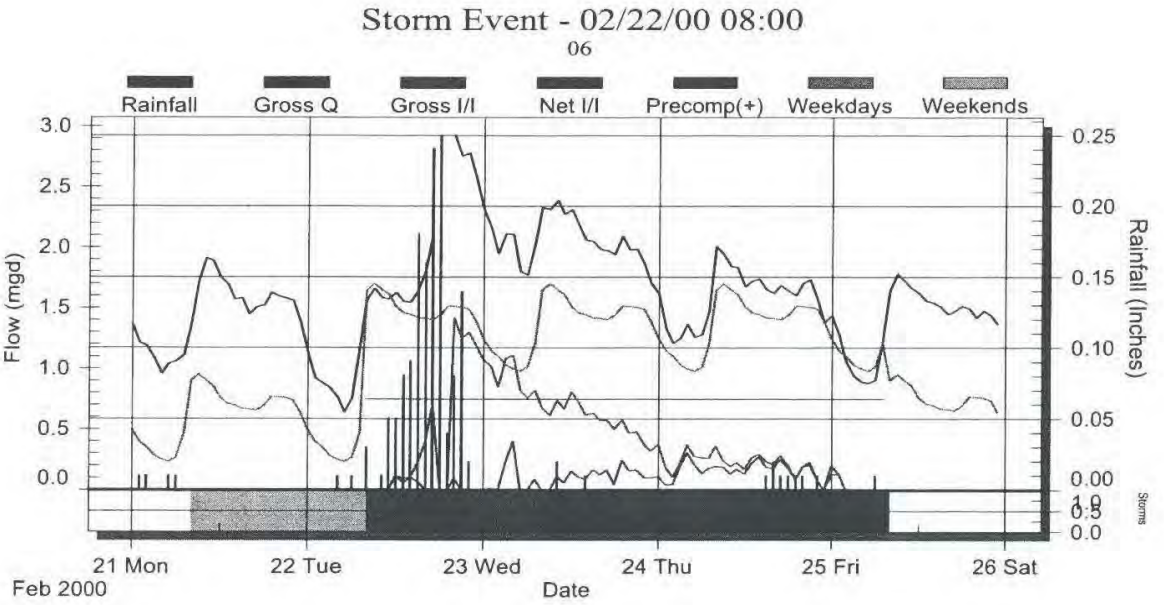

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Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
Rainfall (Inches)
Storms
11 Fri
12 Sat
13 Sun
14 Mon
15 Tue
16 Wed
17 Thu
Feb 2000
Date


Storm Event - 02/22/00 08:00
04
Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
Rainfall (Inches)
Storms
21 Mon
22 Tue
23 Wed
24 Thu
25 Fri
26 Sat
Feb 2000
Date


Storm Event - 02/12/00 22:00
05
Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Rainfall (Inches)
0.25
0.20
0.15
0.10
0.05
0.00
Storms
11 Fri
12 Sat
13 Sun
14 Mon
15 Tue
16 Wed
17 Thu
Feb 2000
Date


Storm Event - 02/22/00 08:00
05
Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Rainfall (Inches)
0.25
0.20
0.15
0.10
0.05
0.00
Storms
21 Mon
22 Tue
23 Wed
24 Thu
25 Fri
26 Sat
Feb 2000
Date


Storm Event - 02/12/00 22:00
06
Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
Rainfall (Inches)
Storms
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Feb 2000
Date

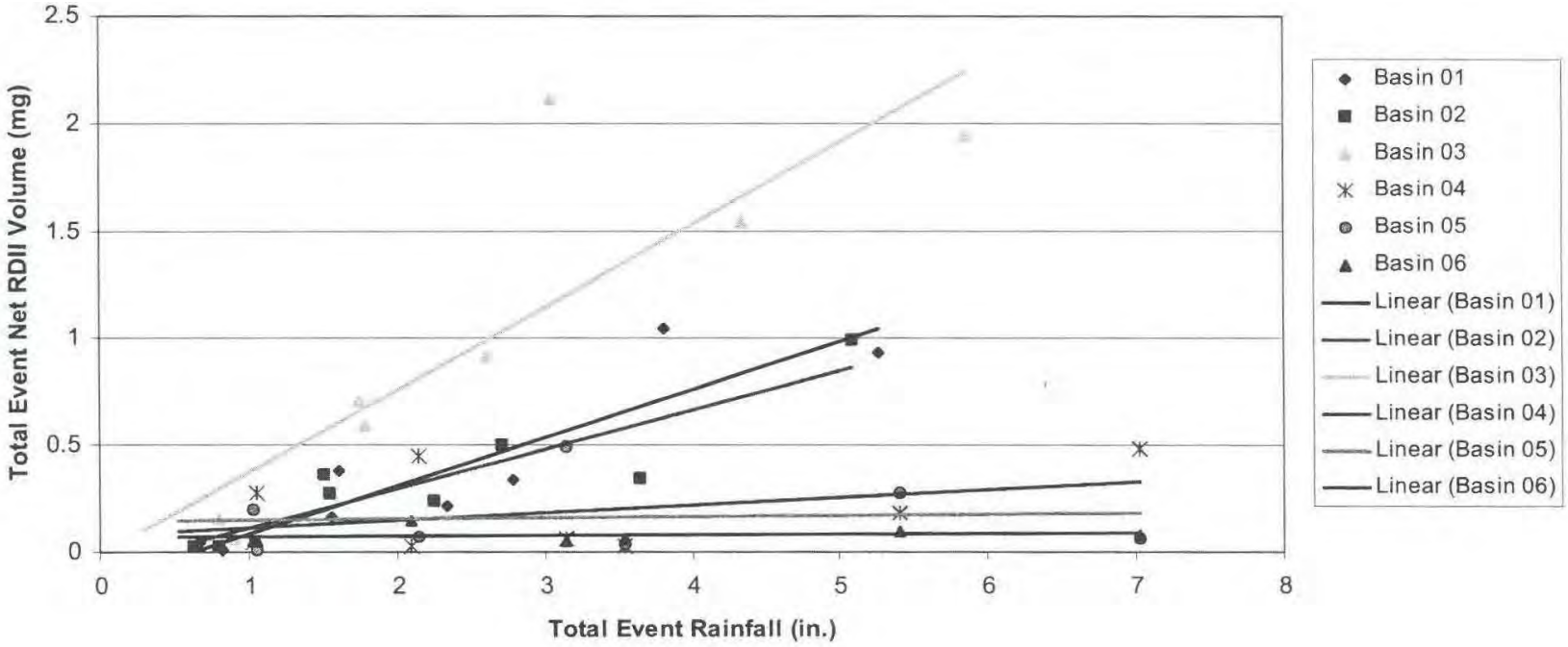

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Rainfall
Gross Q
Gross I/I
Net I/I
Precomp(+)
Weekdays
Weekends
Flow (mgd)
Rainfall (Inches)
Storms
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24 Thu
25 Fri
26 Sat
Feb 2000
Date

Appendix B

Q vs. i Diagrams

City of St. Helena

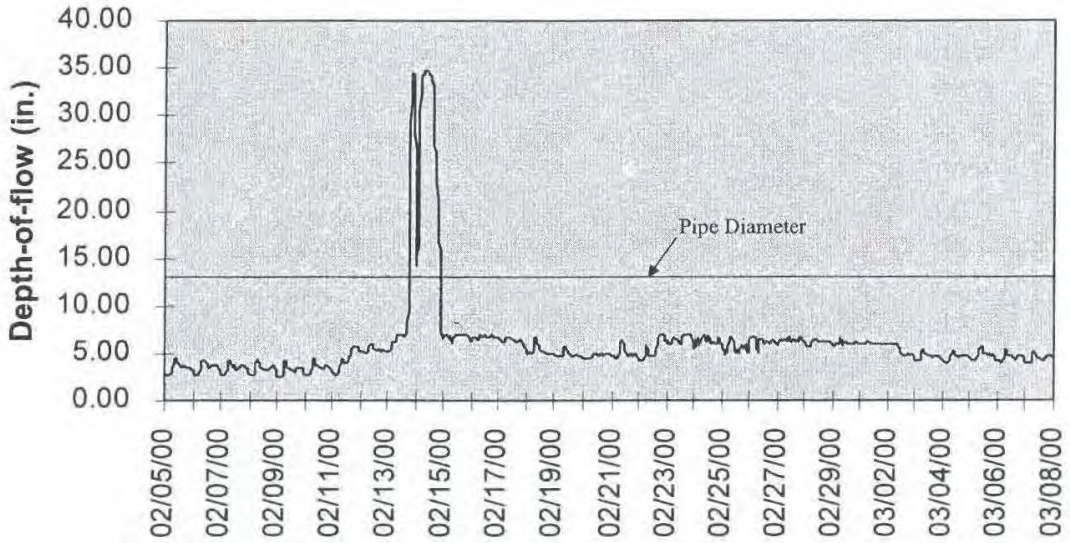
Q vs. i for All Basins



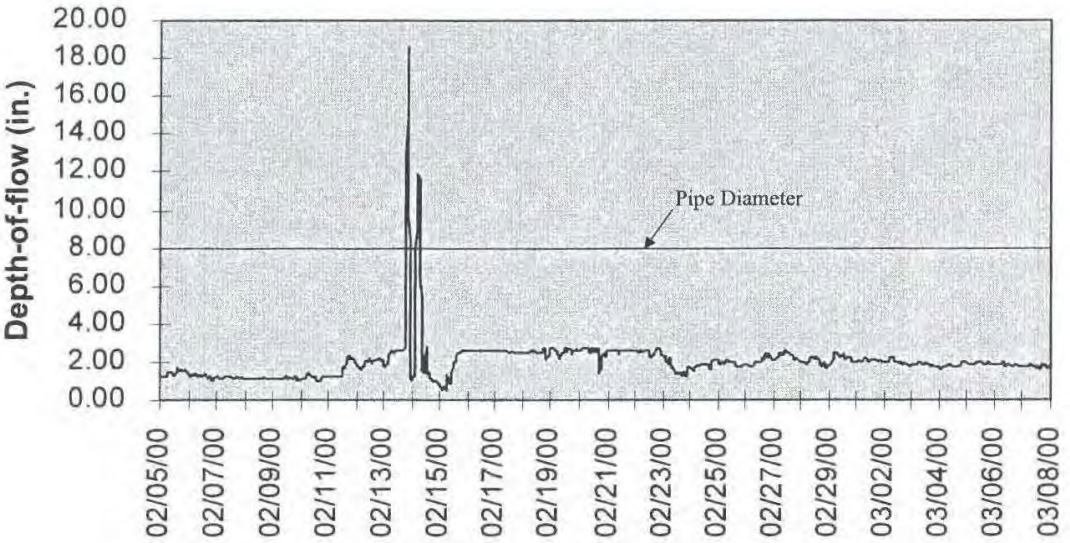
Appendix C

Depth-of-flow Hydographs

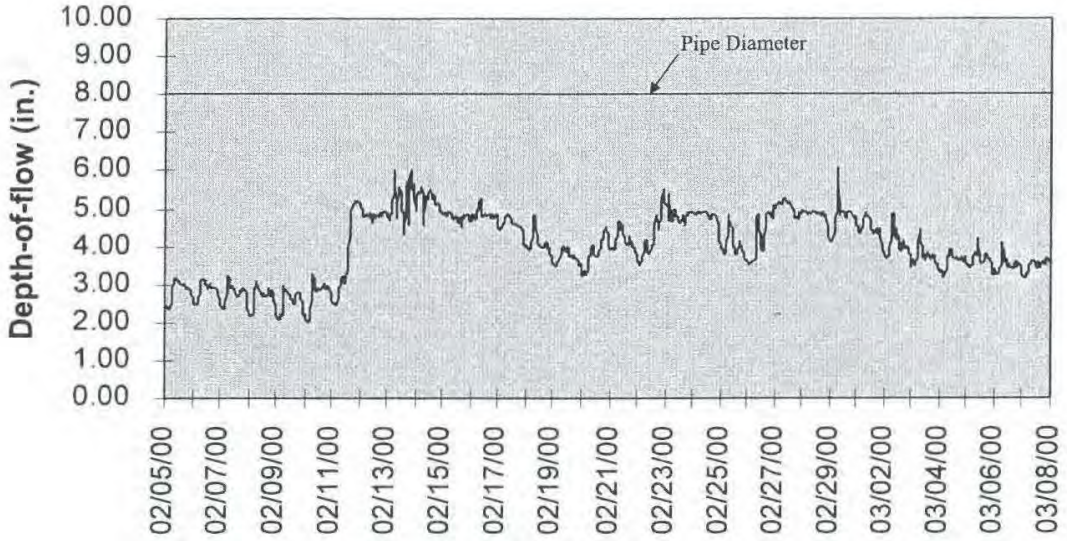
Monitoring Site SH 01
Depth-of-flow Hydrograph



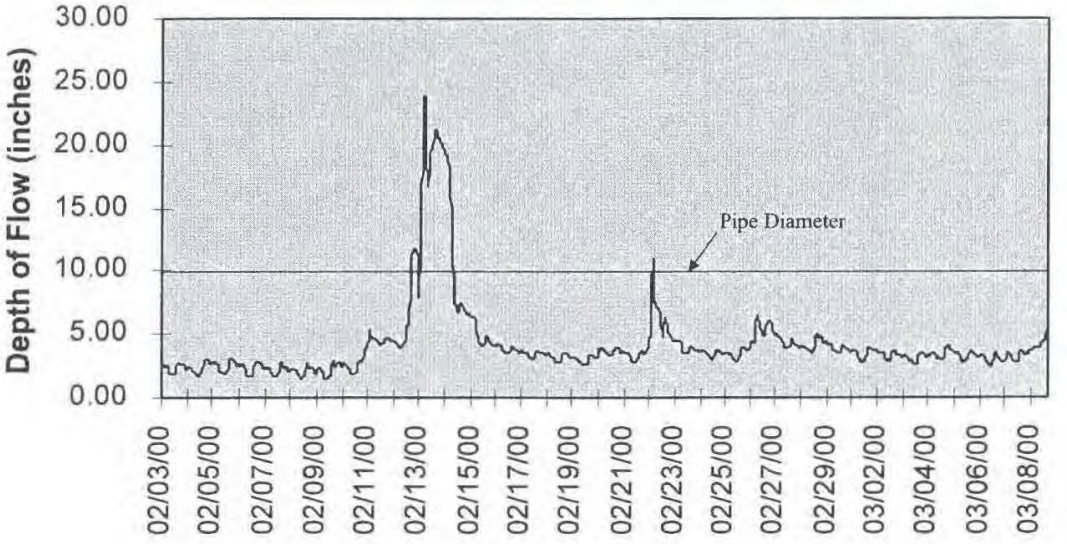
Monitoring Site SH 02A
Depth-of-flow Hydrograph



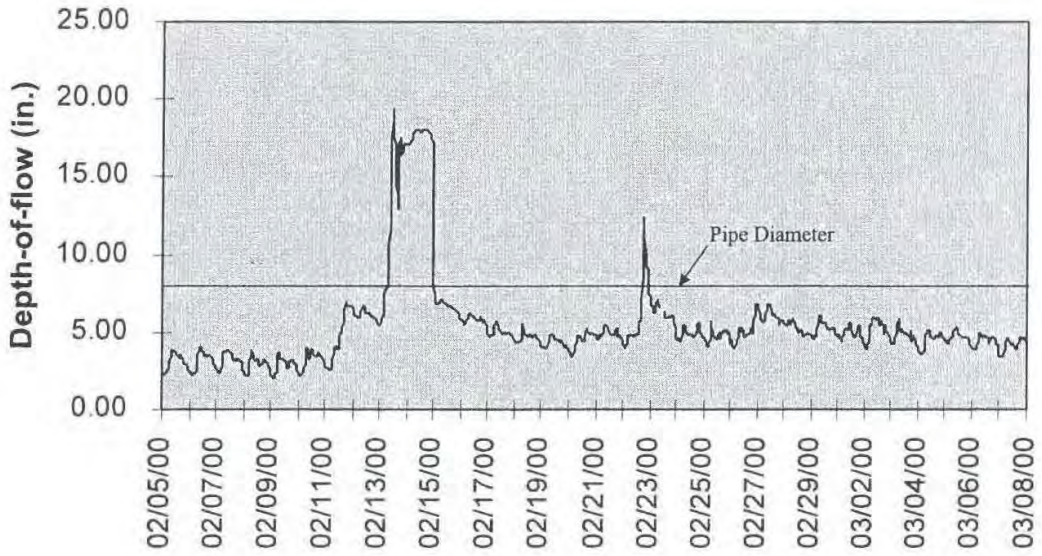
Monitoring Site SH 02B
Depth-of-flow Hydrograph



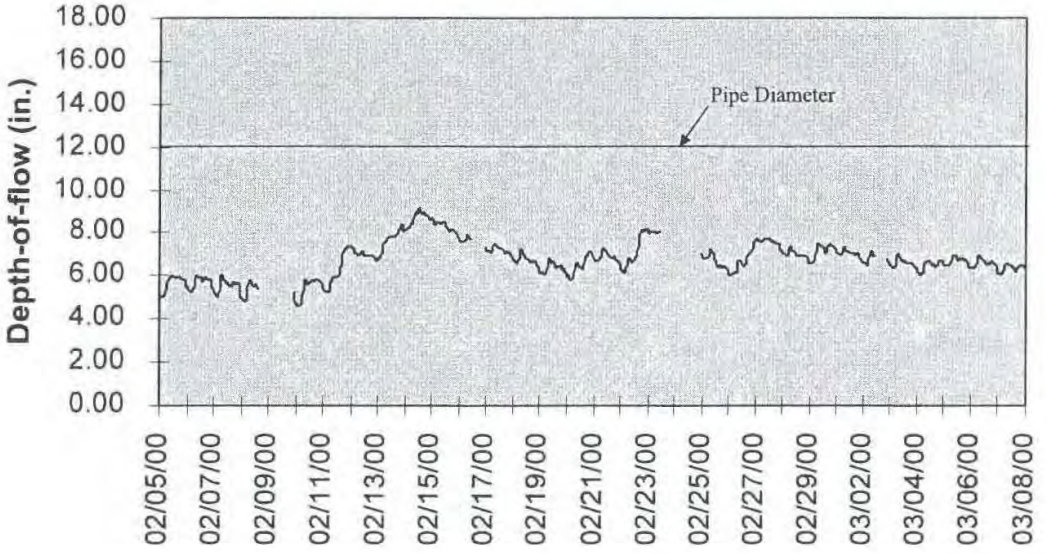
Monitoring Site SH 03A
Depth-of-flow Hydrograph



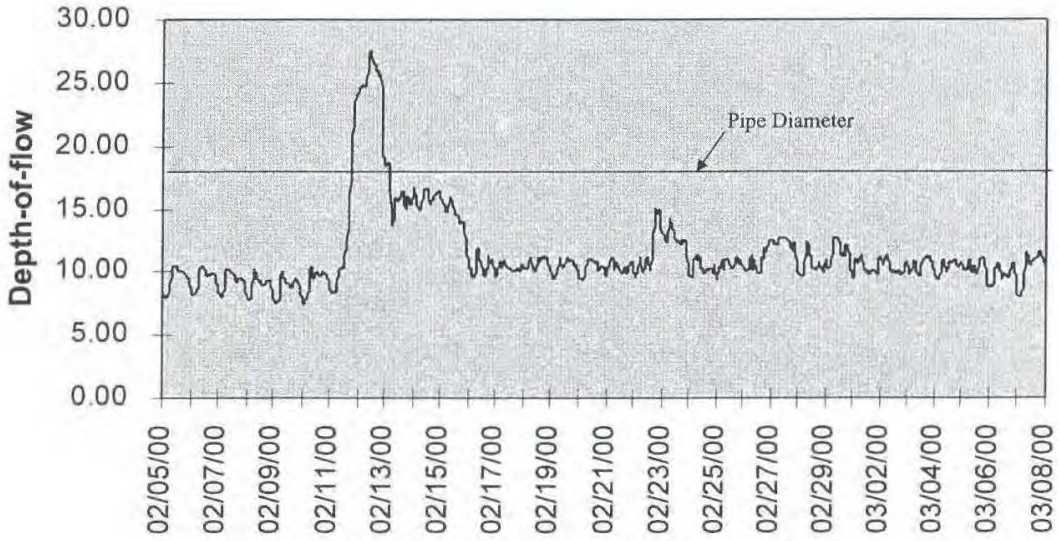
Monitoring Site SH 03B
Depth-of-flow Hydrograph



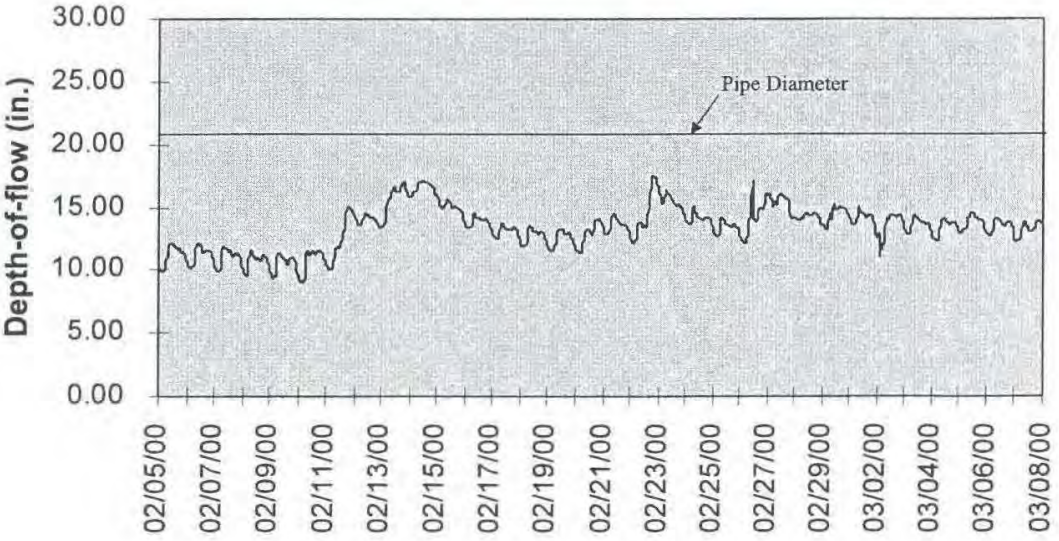
Monitoring Site SH 03C
Depth-of-flow Hydrograph

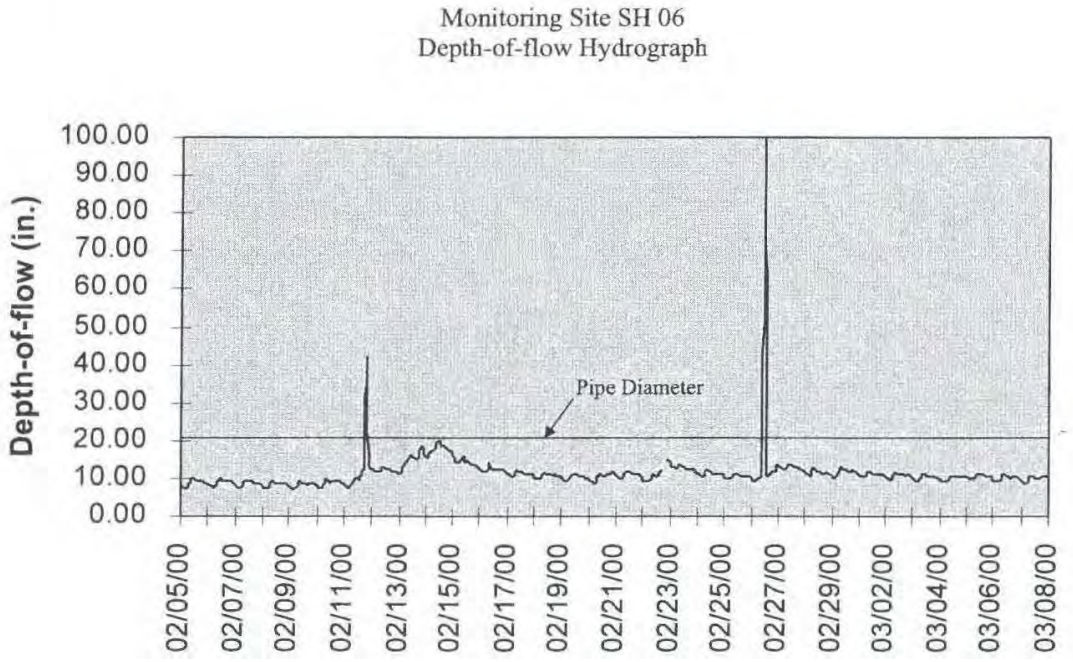


Monitoring Site SH 04
Depth-of-flow Hydrograph



Monitoring Site SH 05
Depth-of-flow Hydrograph




Monitoring Site SH 06
Depth-of-flow Hydrograph
Depth-of-flow (in.)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pipe Diameter
02/05/00
02/07/00
02/09/00
02/11/00
02/13/00
02/15/00
02/17/00
02/19/00
02/21/00
02/23/00
02/25/00
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Appendix D

Velocity vs. Depth Scattergraphs

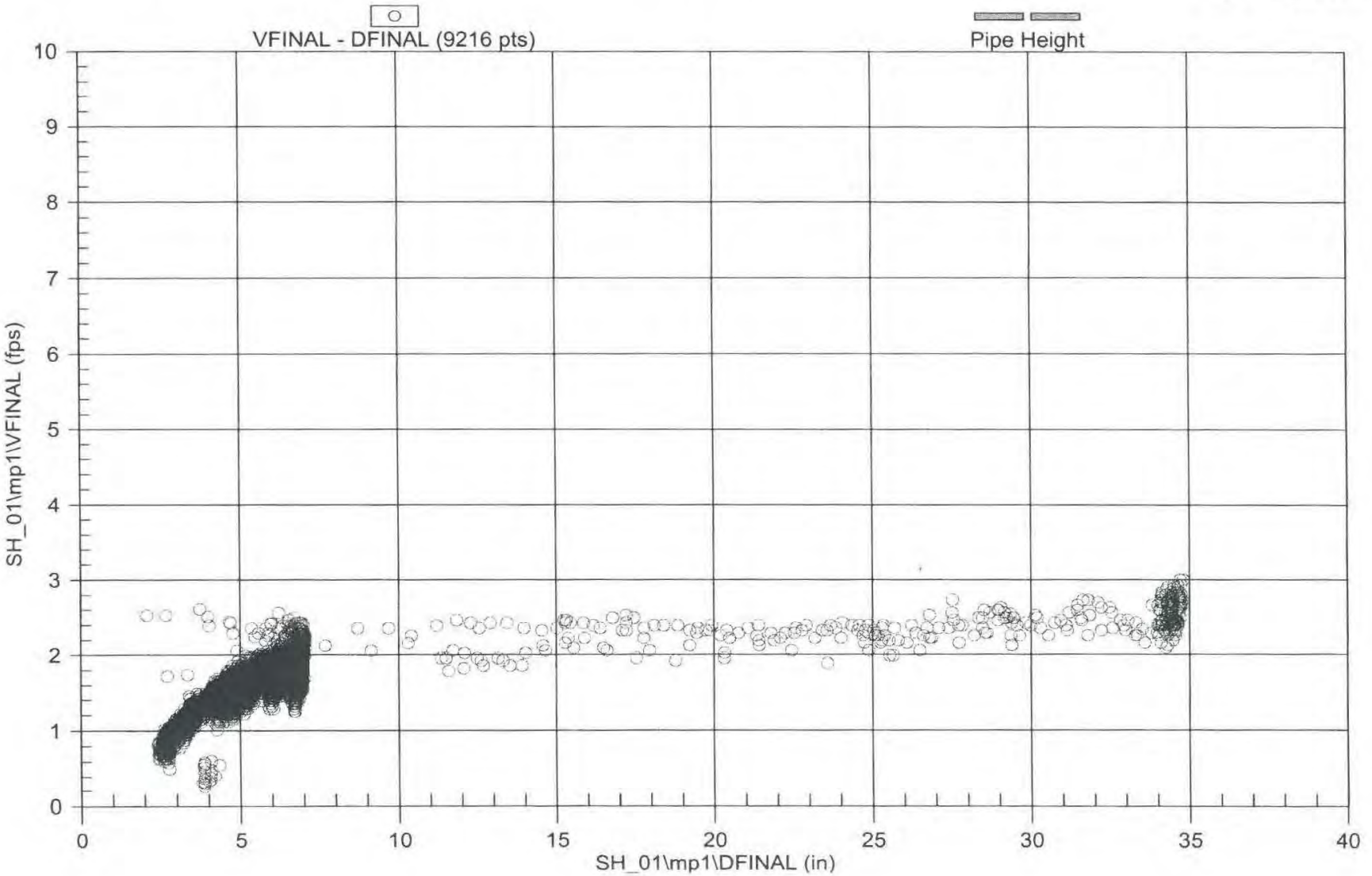
ADS Environmental Services

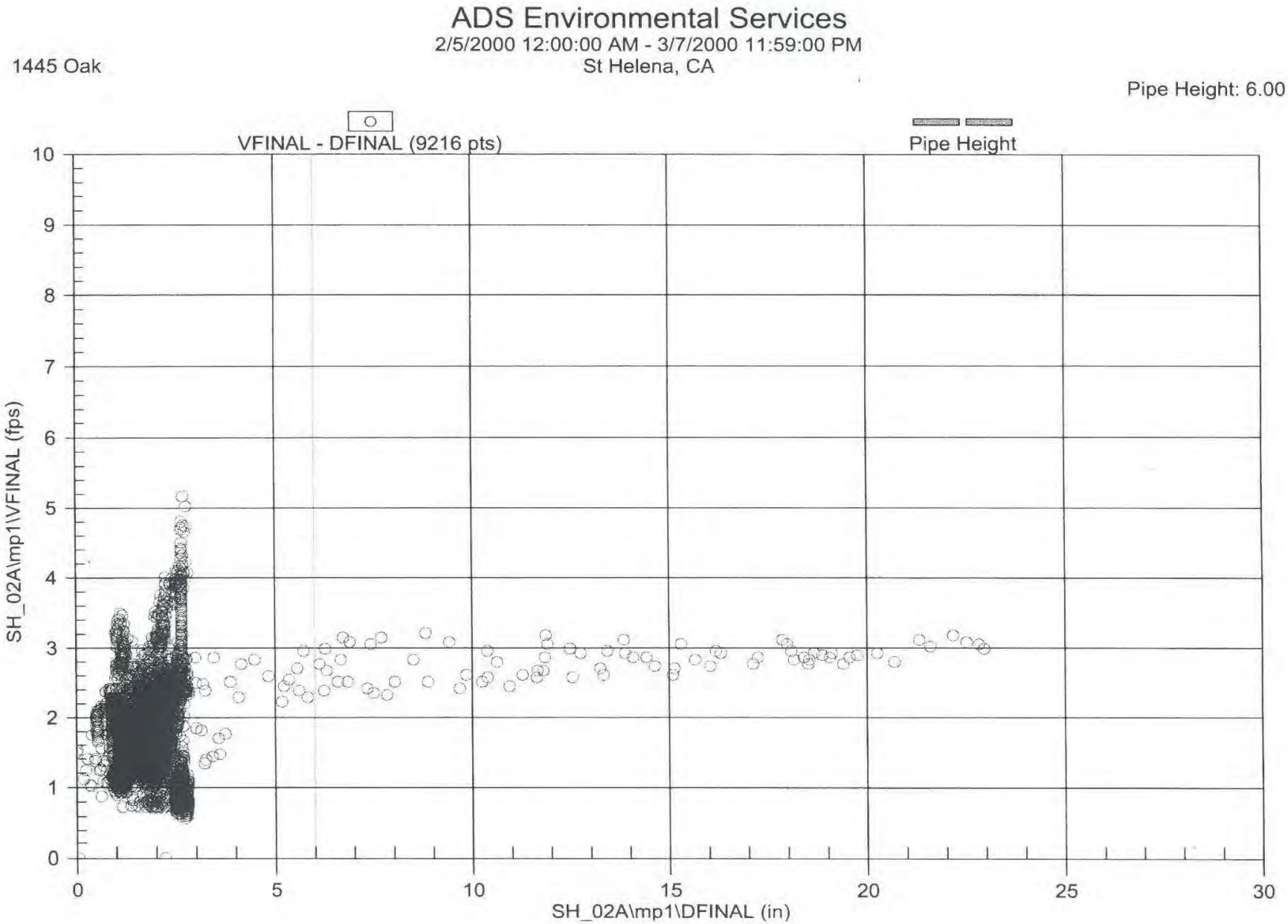
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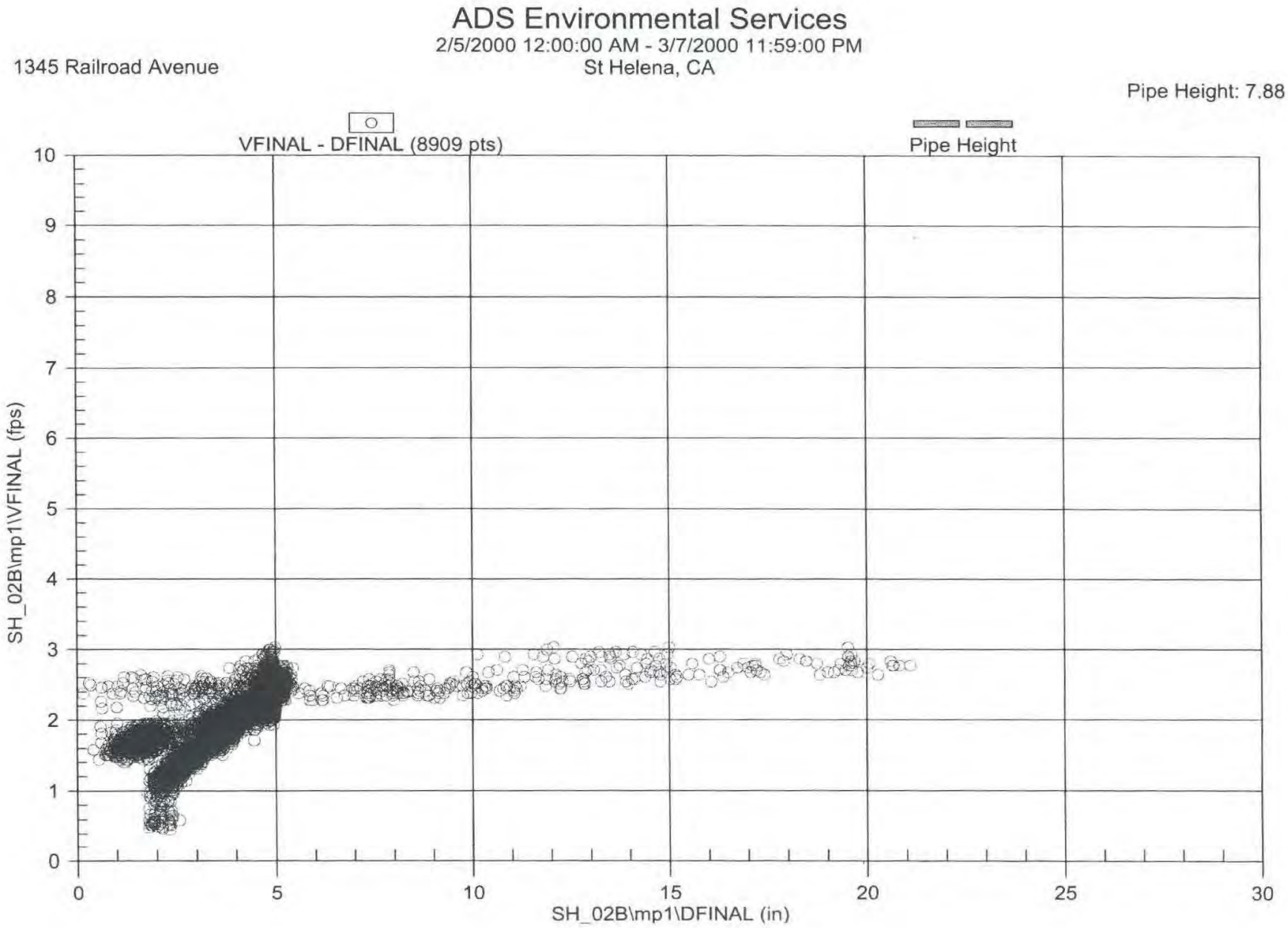
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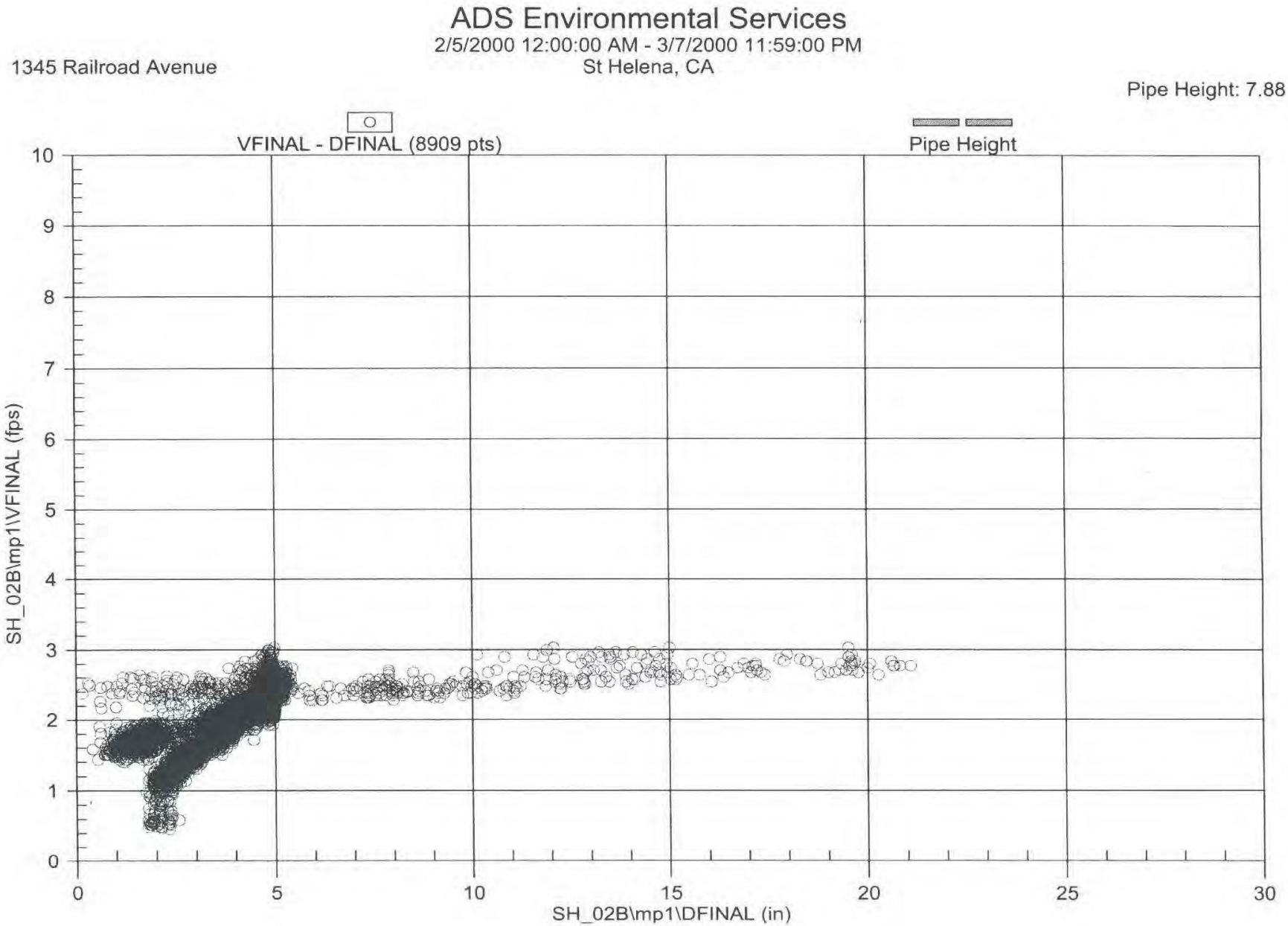
St Helena, CA

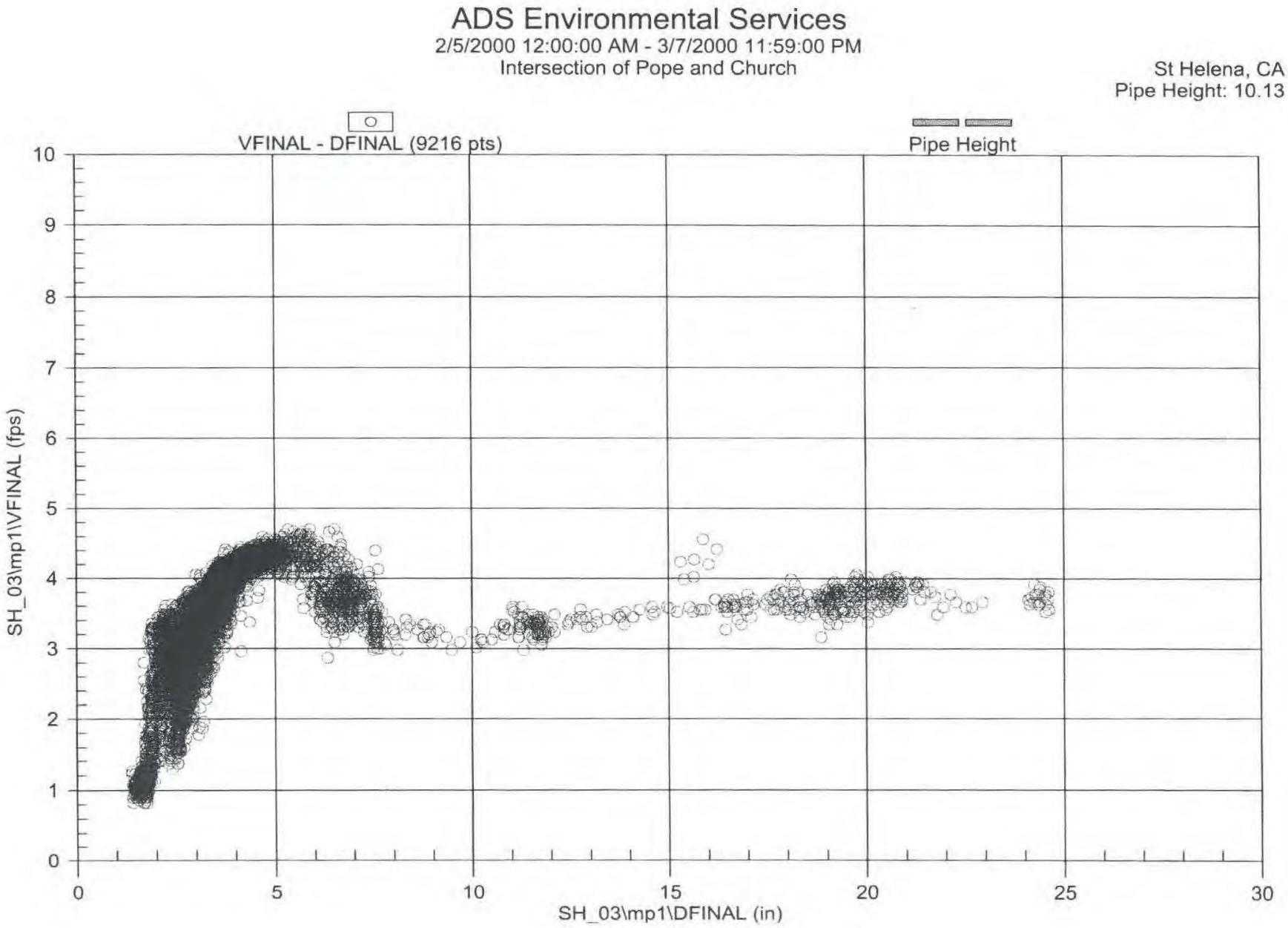
Pipe Height: 9.75

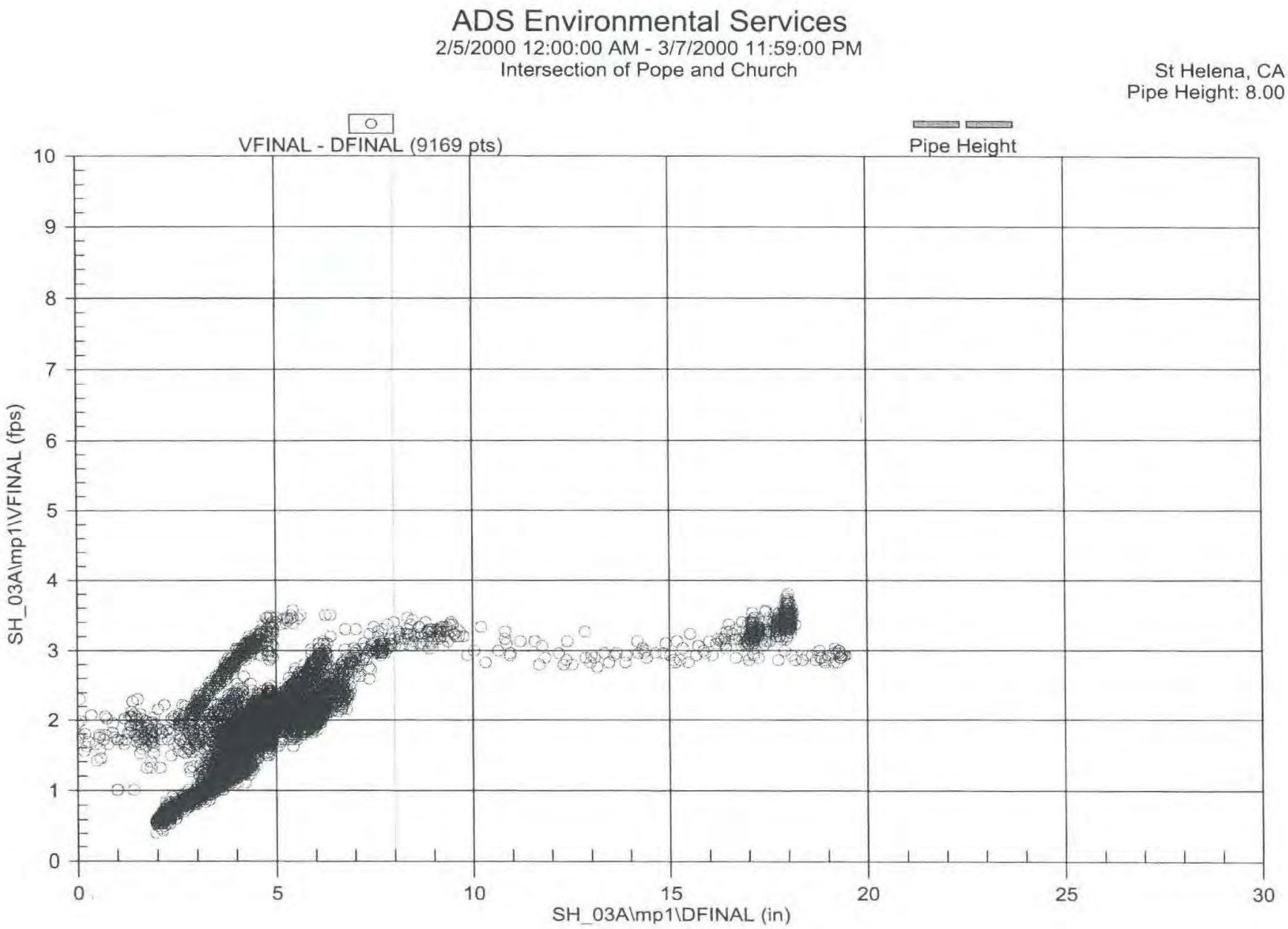


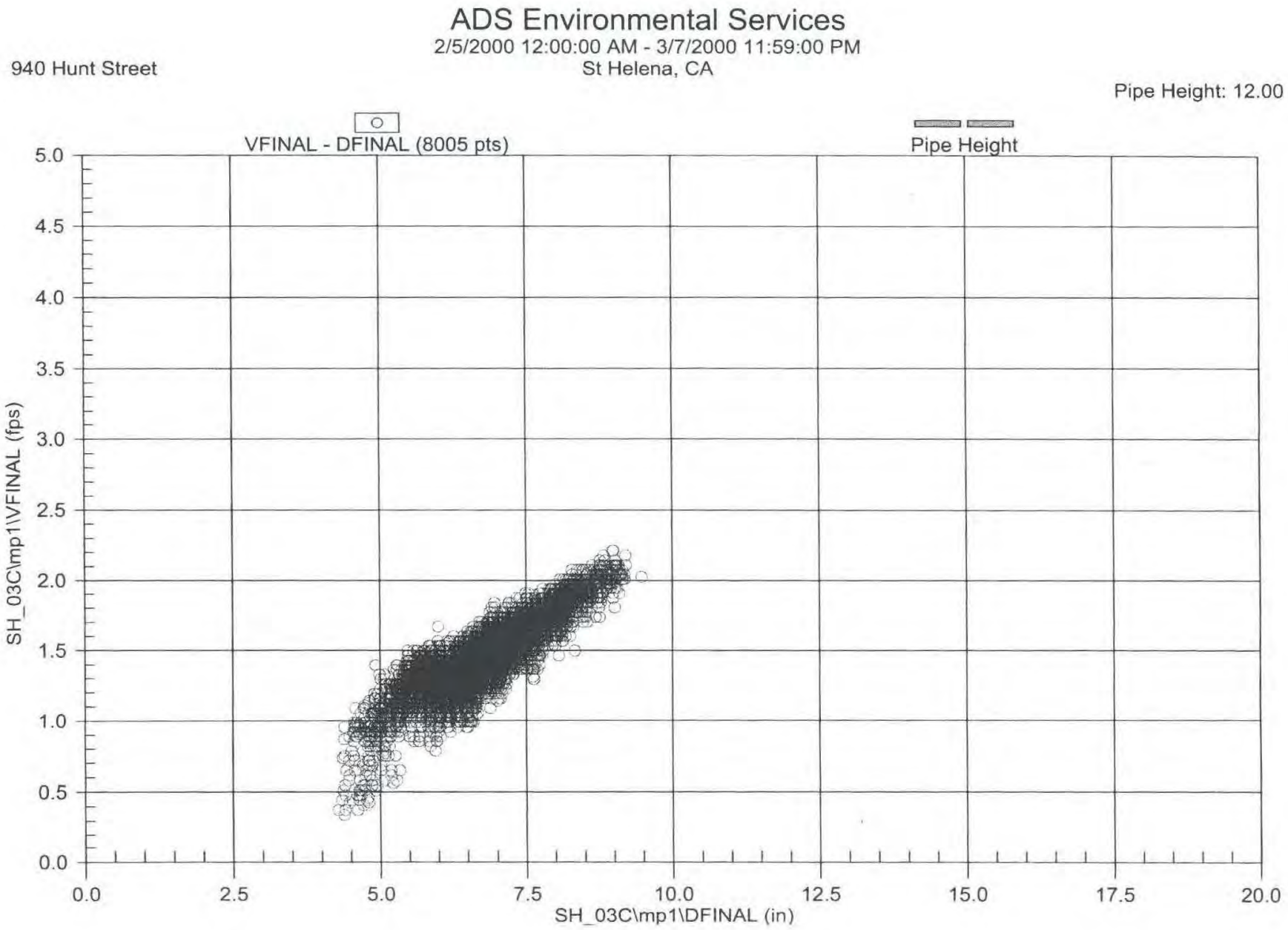

ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
1445 Oak
Pipe Height: 6.00
VFINAL - DFINAL (9216 pts)
Pipe Height
SH_02A\mp1\VFINAL (fps)
SH_02A\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30


ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
1345 Railroad Avenue
Pipe Height: 7.88
VFINAL - DFINAL (8909 pts)
Pipe Height
SH_02B\mp1\VFINAL (fps)
SH_02B\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30


ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
1345 Railroad Avenue
Pipe Height: 7.88
VFINAL - DFINAL (8909 pts)
Pipe Height
SH_02B\mp1\VFINAL (fps)
SH_02B\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30


ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
Intersection of Pope and Church
St Helena, CA
Pipe Height: 10.13
VFINAL - DFINAL (9216 pts)
Pipe Height
SH_03\mp1\VFINAL (fps)
SH_03\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30


ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
Intersection of Pope and Church
St Helena, CA
Pipe Height: 8.00
VFINAL - DFINAL (9169 pts)
Pipe Height
SH_03A\mp1\VFINAL (fps)
SH_03A\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30

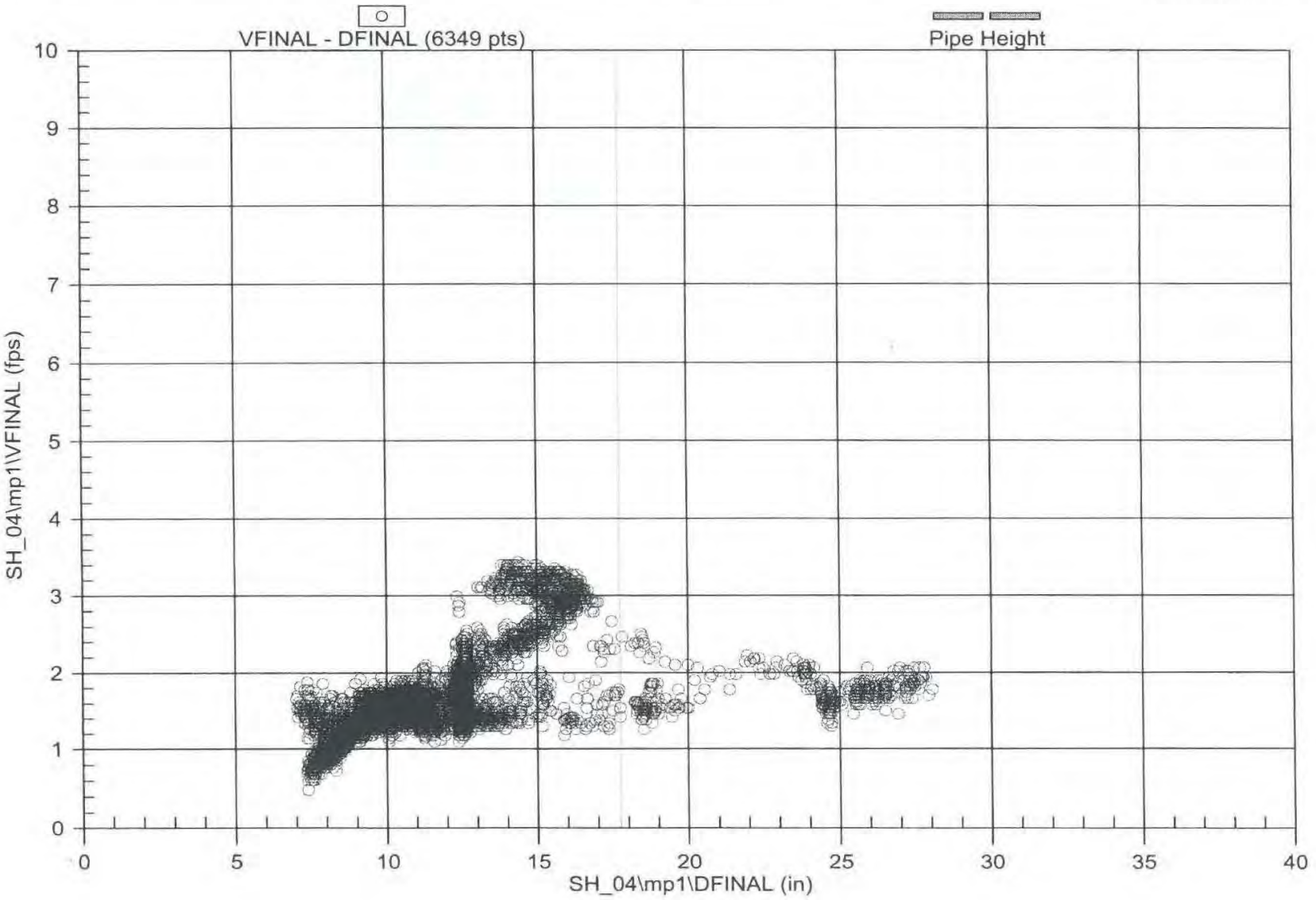

ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
940 Hunt Street
Pipe Height: 12.00
VFINAL - DFINAL (8005 pts)
Pipe Height
SH_03C\mp1\VFINAL (fps)
SH_03C\mp1\DFINAL (in)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

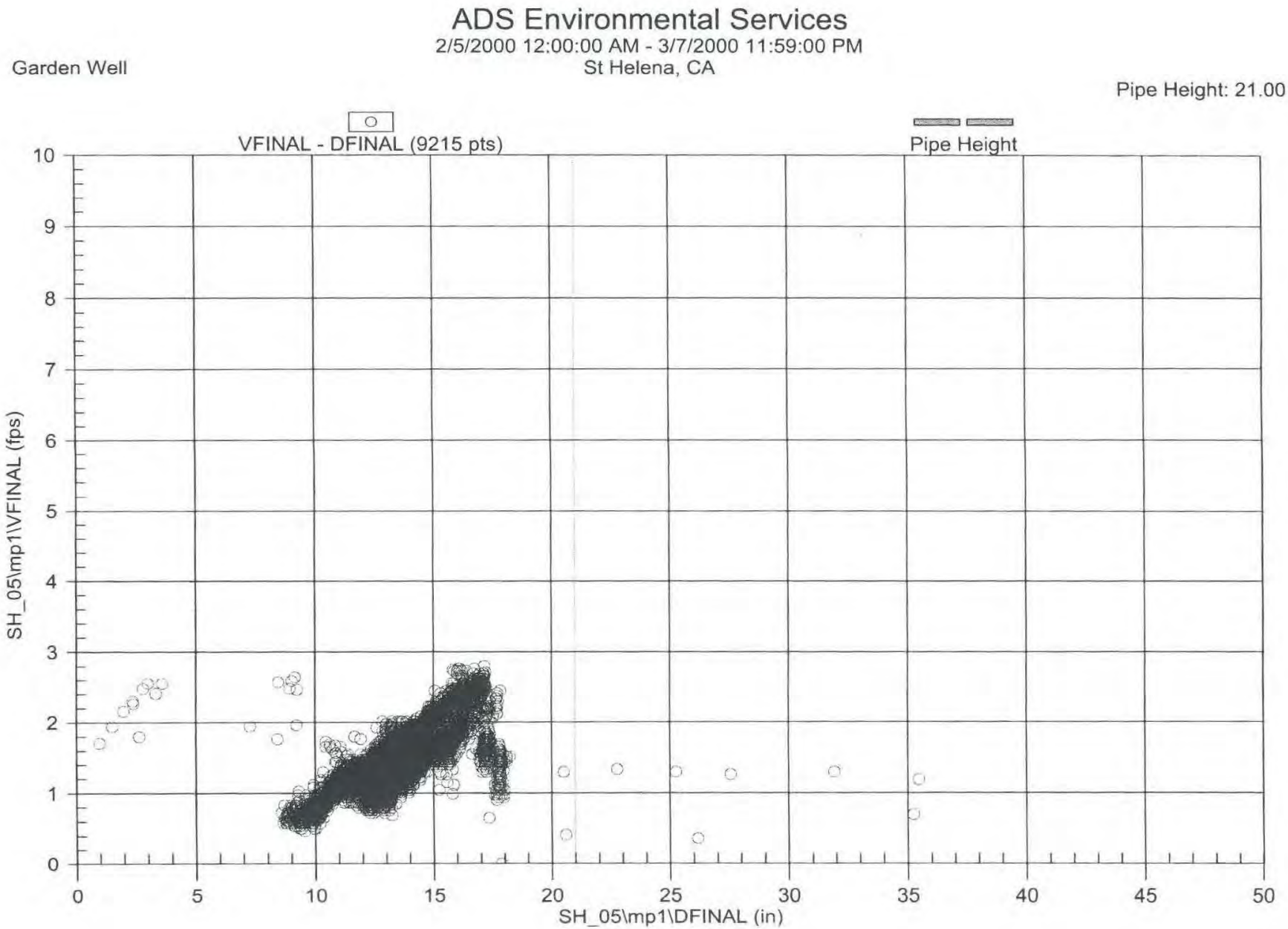
ADS Environmental Services

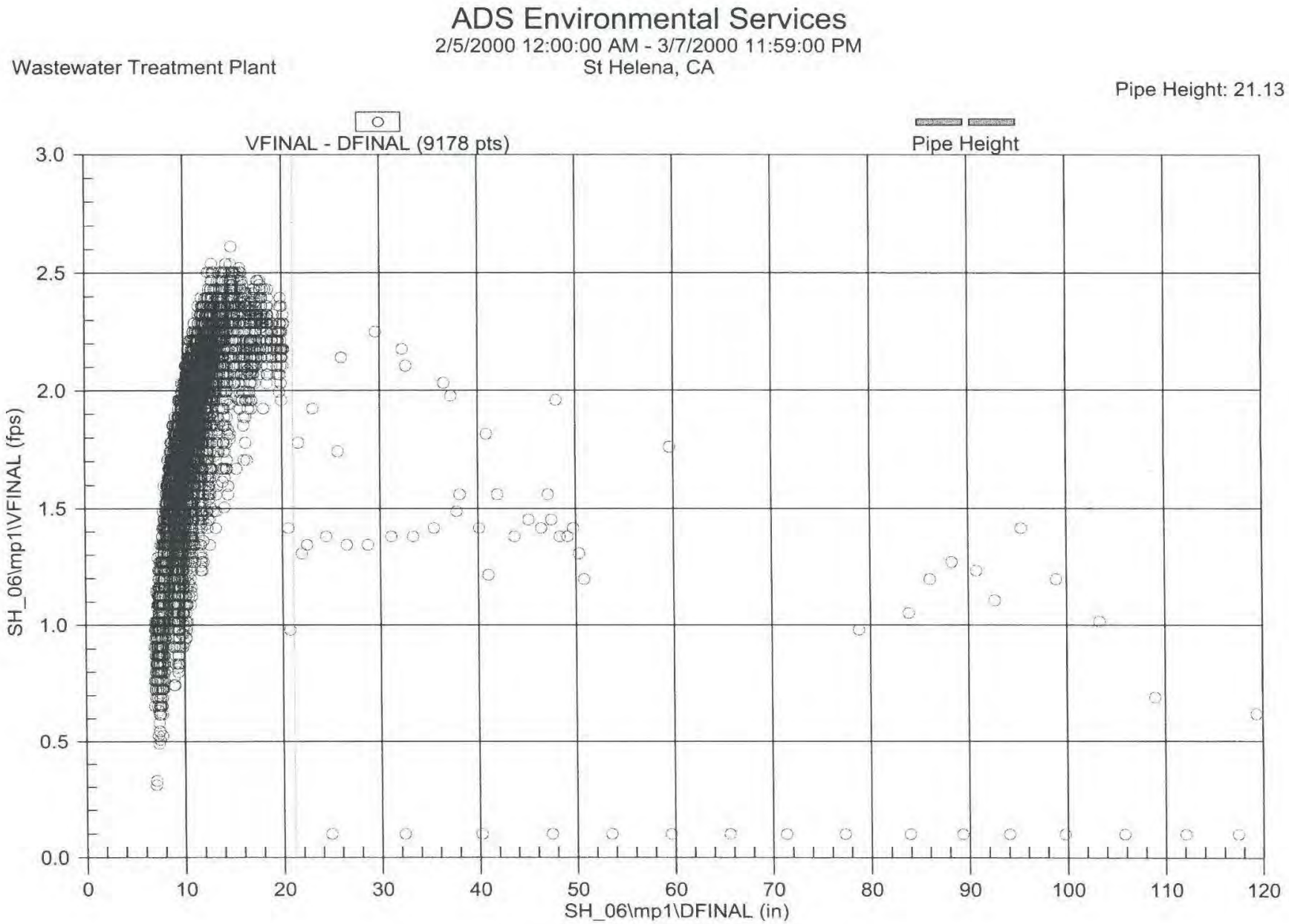
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM

Intersection Of Redondo and Paseo Grand St Helena, CA

Pipe Height: 17.75




ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
Garden Well
Pipe Height: 21.00
VFINAL - DFINAL (9215 pts)
Pipe Height
SH_05\mp1\VFINAL (fps)
SH_05\mp1\DFINAL (in)
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30
35
40
45
50


ADS Environmental Services
2/5/2000 12:00:00 AM - 3/7/2000 11:59:00 PM
St Helena, CA
Wastewater Treatment Plant
Pipe Height: 21.13
VFINAL - DFINAL (9178 pts)
Pipe Height
SH_06\mp1\VFINAL (fps)
SH_06\mp1\DFINAL (in)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
90
100
110
120

Sewer Flow Isolation Study (2007)

Sewer Flow Isolation Study

Saint Helena, California



Spring 2007

Prepared for:
Summit Engineering, Inc.
463 Aviation Boulevard
Santa Rosa, CA 95403

Prepared By:

ADS ENVIRONMENTAL SERVICES

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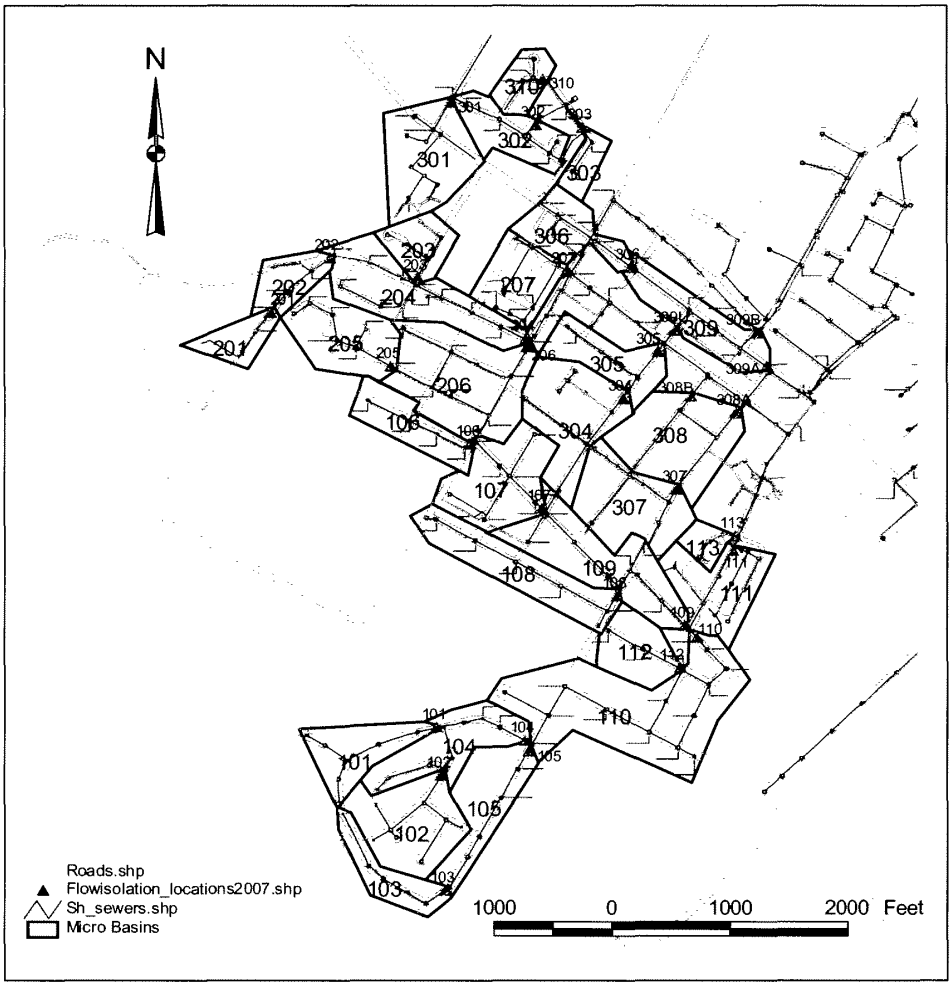
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Introduction

Summit Engineering Inc. contracted with ADS Environmental Services to provide flow isolation services for portions of the sewer system in the City of Saint Helena. Nighttime flows were isolated at 32 manhole locations within former flow monitoring basins 1, 2, and 3 of the City sewer system. This report presents the results of the flow isolation study indicating areas of excessive apparent infiltration. The locations of the flow isolations are indicated in Figure 1 with a marker placed on the associated pipe in which the weir was placed.

Figure 1 – Flow Isolation Locations



SCOPE

The scope of this project was to perform up to 35 flow isolations at sites selected by ADS in cooperation with Summit Engineering. The flow rate data from these flow isolations was compiled for each area associated with the isolation, and then ranked in terms of relative severity by normalizing the flow rates in terms of flow per associated mile of pipe in gallons per day per mile (gpd/mile). Although 32 locations were selected for flow isolations, four locations were re-measured on different nights to confirm stable flow readings. These include site 104, 105, 110, 112, and 309B.

FLOW ISOLATIONS

Purpose

Flow isolations allow infiltration to be quantified by dividing the previously delineated flow monitoring basins[1] into smaller zones (micro-basins) and measuring the late-night (clear water) flow rate within each of the micro-basins. The process consists of recording flows of micro-basins by taking instantaneous weir readings at the isolation points during periods of minimum sewage contribution - normally between 2:00 AM and 6:00 AM. By subtracting any flows from upstream micro-basins, net infiltration for a particular micro-basin may be determined. Where applicable, the observed degree of clarity of the flow can be applied as a multiplier to the measured flow to calculate the portion that is considered infiltration. It is noted that all flows quantified during this study were comprised of "clear water".

Once infiltration rates are established, a determination of *Excessive* or *Non - Excessive* infiltration rates is determined for each micro-basin. Based on this evaluation, subsequent manhole and TV inspections are recommended.

[1] Inflow/ Infiltration Analysis Report for Saint Helena prepared by ADS, July 2000.

All sewage collection systems will have a certain amount of infiltration. The joint ASCE-WEF (1982) design guidelines for gravity sewers gives a table of guidelines used by various municipalities for the infiltration that should be used in capacity calculations for a sewer system approaching the end of its design life. These guidelines are expressed in terms of gallons per day per inch diameter mile (gpd/IDM) and in terms of gpd/mile (assuming 8-inch pipes) and are presented in the following table.

Table 1
ASCE-WEF Infiltration Guidelines

Number and Percent Of Cities Reporting	I&I Allowance (gpd/IDM)	Total I&I Allowance (gpd/mile)
4 (3.1%)	1500	12,000
4 (3.1%)	1000	8,000
1 (0.8%)	800	6,400
2 (1.6%)	700	5,600
1 (0.8%)	600	4,800
63 (49.2%)	500	4,000
11 (8.6%)	450 to 300	3,000
16 (12.5%)	250 to 150	1,600
21 (16.4%)	100	800
5 (3.9%)	50	400
Total Cities = 128	Weighted Avg. = 422	Weighted Avg. = 3,200

Procedure

Flow isolations were performed with calibrated volumetric V-Notch weirs and completed between the hours of 2:00 AM and 6:00 AM to record infiltration entering each micro-basin. ADS field crews recorded pipe diameter, flow clarity, active leaks and other manhole or line observations while performing the flow isolations. Flow isolation field log forms are included in the Appendix of this report along with flow isolation reference maps used during field operations. Flow isolations were conducted at locations selected and evaluated by ADS and Summit Engineering.

It is noted that the intended 8" pipe to be measured at location 111 (the line coming into this manhole from the east) was not found at this location, therefore flow was quantified in the main 10" line along Mitchell Drive. This modified the boundary of micro-basin 111 from its original configuration. The actual sewer connection from this area to the east of Mitchell Drive will require field verification.

Based on electronic maps provided by Summit Enginering, ADS mapped locations and linear footage (LF) of each micro-basin. Total sewer pipe lengths for each micro-basin were determined based on computed lengths from the maps provided. Pipe diameters were measured in the field at the flow isolations points.

Micro-basins are either hydraulically dependent or independent. The flow quantities generated for an independent micro-basin were based on one or more flow isolation locations at the outflow point(s) of the micro-basin independent of all other locations, while the flow quantities generated by a dependent micro-basin include flow from upstream micro-basins. Upstream flows, derived from upstream flow isolations, were subtracted from the dependent micro-basin flow quantities to calculate net flow for the dependent micro-basins.

Weirs are available for standard pipe diameter sizes ranging from 6 inches up to 18 inches. Weirs were placed in sewer lines at the outlet locations of each micro-basin. Flowrates in gallons per day (gpd) were recorded from the weir readings. When a weir was installed, the flow was allowed to stabilize for at least five minutes before the first reading was taken. The weir flowrate reading was recorded only after the flow stabilized to the same reading for two consecutive 2 minute intervals. A depiction of a stabilized weir at a pipe outfall is shown in Figure 2.

Figure 2 – Depiction of Flow Isolation Weir



In case where unobstructed depths of flow were greater than 1-inch or if backwater disallowed weir readings to be made with confidence, flow quantification was also attempted using direct depth and velocity measurements. The depth of the flow was manually measured with a folding carpenter ruler and velocity was obtained with a portable electromagnetic velocity meter. The flow quantity was then calculated using the continuity equation for open channel flow:

$$Q = A * V$$

Q = Quantity (gpd)
A = Cross-sectional area of flow (ft^2)
V = Average Velocity (ft/s)

Cross-sectional Area for a partially full pipe is a function of measured depth (less any measured silt). Average Velocity is calculated using standard 0.9 average / measured peak ratio.
The conversion from ft^3/s to gpd is 646317.

An example is presented below for Site 309B comparing weir-based flow to flow rate based on direct open channel measurements.

Example (Site 309B):

Diameter: 12"
Depth: 4.38" Peak Velocity: 0.21 ft/sec

Cross-sectional Area of Flow: 0.259 (ft^2)
V_{avg} = ~0.19 ft/sec

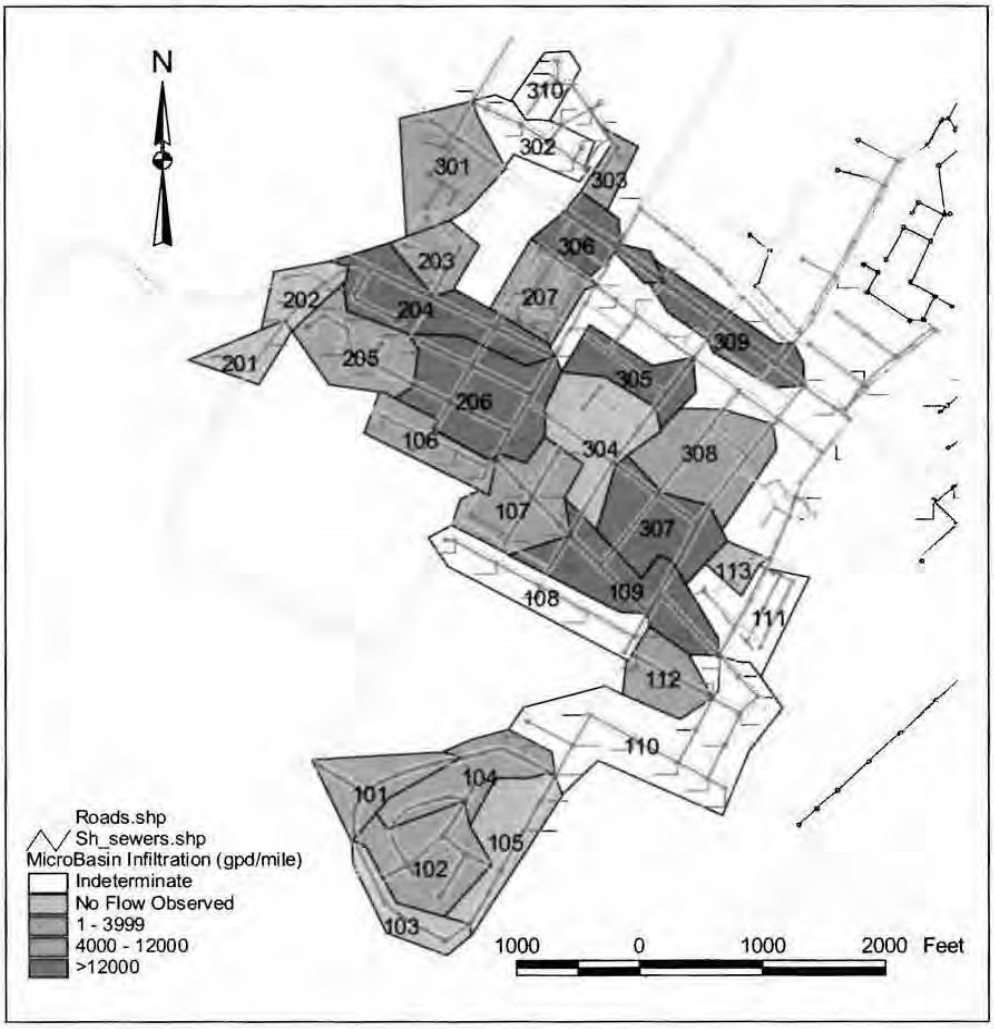
$Q = A_{(cross\text{-}sect)} \times V_{avg} \times gpd$ conversion
Q = 0.259 ft^2 x 0.19 ft/sec x 646317
Q = 31,800 gpd

Q_{weir} = 35,960 gpd

Flow Isolation Results

Tabular results of the flow isolations are summarized in Table 1. The results of the flow isolations are depicted graphically in Figure 3 showing colored gradations associated with worsening classifications of observed infiltration. The primary break point of 4000 gpd/mile was chosen based on the majority of respondents per Table 1.

Figure 3 – Flow Isolation Infiltration Results



Three of the micro-basins indicated an imbalance regarding net flows. They were 110, 111, and 302. This may be the result of flows bypassing the weir through the piping trench (e.g. at 302) or low confidence due to a high degree of upstream subtracted flows (110, 111), or a combination of both factors. Three micro-basins showed stagnant flow conditions likely due to a downstream obstruction. They were 108, 302, and 310. Consequently, if infiltration flows were present at these locations, it was not quantifiable (i.e. flows may have occurred in the trench and not in the pipe during the night-time minimum flow period). These 5 different locations are highlighted or footnoted in Table 1.

It is notable that flows were re-measured at location 110 on 3 separate nights (at approximately the same time), each night resulting in different values of infiltration. The highest measured value is indicated in Table 1 for this location. An explanation for this was not readily evident.

Conclusions and Recommendations

It is generally evident that each of the 3 primary basins appear to worsen in measured degree of infiltration moving downstream. This is likely the result of the groundwater table encompassing more of the sewer trench as the sewer progresses deeper toward the effluent point of each basin.

Given the relatively ubiquitous excessive infiltration measured in the micro-basins, it is likely that the entire sewer system in these basins becomes inundated with infiltrating groundwater during extended periods of heavy precipitation.

The highest rate of inifiltration was measured in the lowest micro-basin within basin 3 (at location 309B) at an estimated net flow rate of 24,000 gpd. This flow rate in conjunction with the observed gravel and silt in this line suggests that portions of the piping in this micro-basin may be failing and allowing backfill or even road bed materials to enter the sewer.

ADS recommends that the City of Saint Helena conduct CCTV (video) inspection of all the pipes within micro-basin 309 as soon as practicable. Selected other areas should follow, including micro-basins 102, 109 and 206, to determine frequency of defects (e.g. every joint or just at defects such as offsets or broken segments).

Given the age of much of the sewer system and the apparent degree of infiltration and inflow (I/I) as evidenced by this and the previous 2000 study, it is recommended that the City adopt a program to rehabilitate the sewer system while continuing to monitor flows in these primary basins to capture progress toward I/I removal and wastewater flow capacity improvement. It appears that the rehabilitation should begin at the lower reaches of the system (e.g. micro-basin 309) and move upstream.

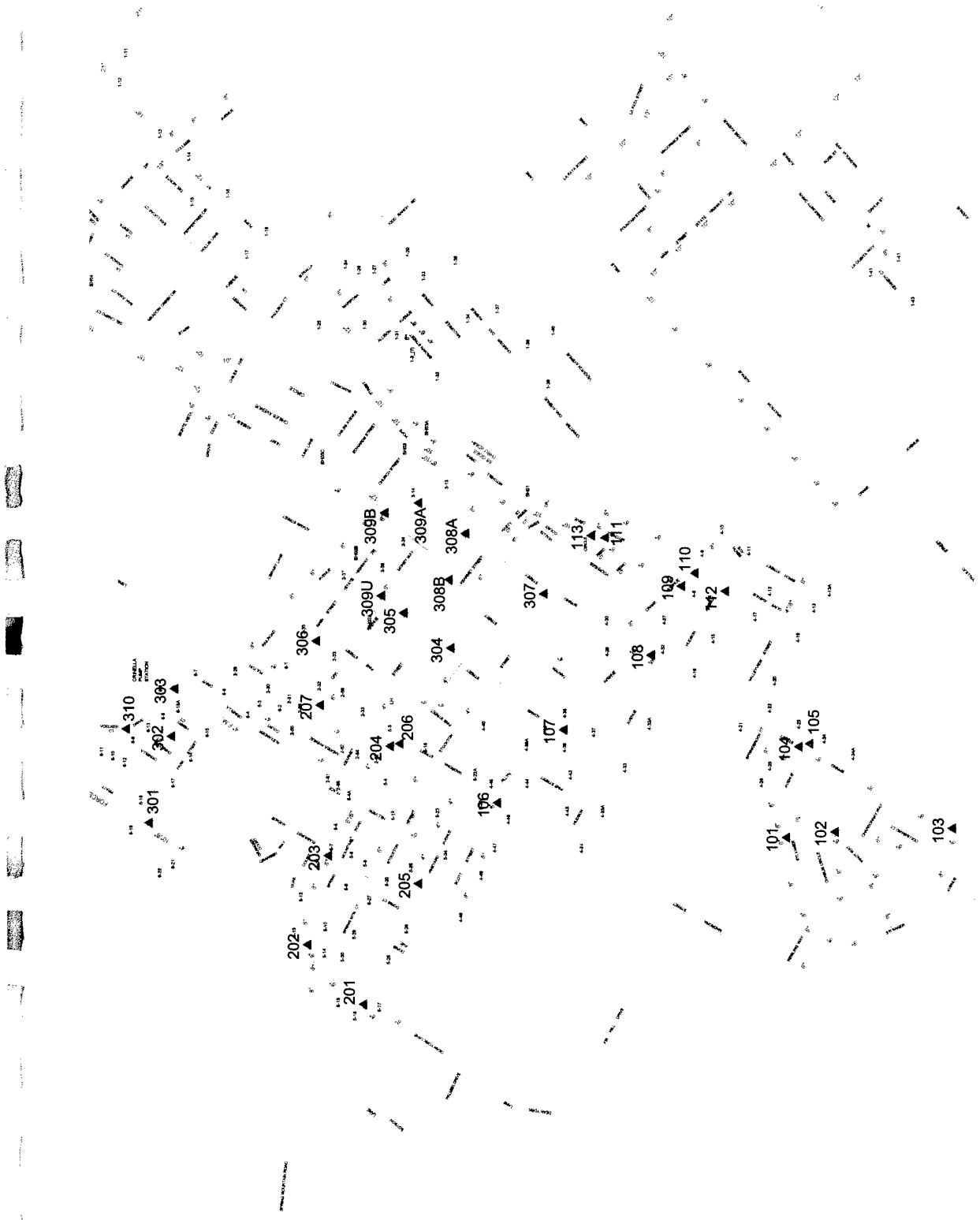
Table 2 - Micro Basin Flow Isolation Results

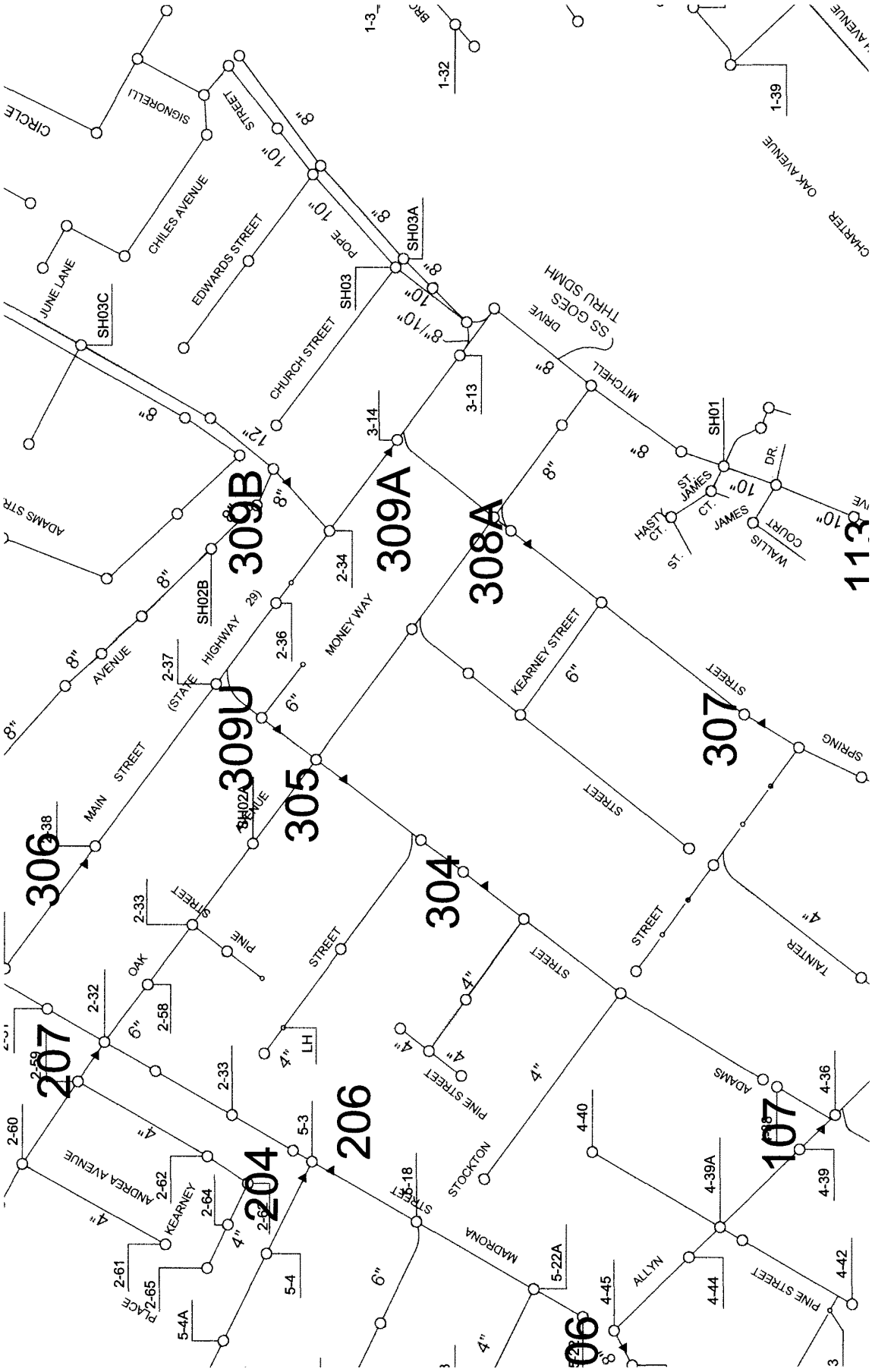
MicroBasin ID	SumPipes (feet)	Upstream Sites	Net Flow Microbasin (% of gross)	Site ID	Pipe Dia (in)	Weir Gross Flow (gpd)	Net Flow Microbasin (gpd)	Normalized Net Flow Microbasin (gpd/mile)
101	2062			101	8	2440	2440	6248
102	2421			102	8	4690	4690	10229
103	1615			103	8	0	0	0
104	2196	101+102	19%	104	6	8806	1676	4030
105	1653	103	--	105	6	0	0	0
106	1284			106	8	260	260	1069
107	2545	106	86%	107	6	1916	1656	7000
108*	2559			108	8	0*	0*	--*
109	2718	107+108	79%	109	8	9243	7327	14233
110*	5058	104+105+112	--*	110	8	9243	-1315	--*
111*	3899	109 + 110	--*	111	10	11180	-3223	--*
112	848			112	6	1752	1752	10909
113	831			113	8	0	0	0
201	1003			201	8	0	0	0
202	1268	201	--	202	8	0	0	0
203	1356			203	8	57	57	222
204	3355	202+203	99%	204	6	10512	10455	16454
205	1735			205	6	1458	1458	4437
206	3674	205	86%	206	6	10512	9054	13012
207	2360			207	6	464	464	1038
301	3363			301	8	1916	1916	3008
302*	1722	301	--*	302	8	0*	-1916	--*
303	637			303	6	115	115	953
304	2888			304	6	0	0	0
305	1641	304	100%	305	6	5160	5160	16603
306	1296			306	6	3196	3196	13022
307	2428			307	6	5553	5553	12076
				308A	6	5553		
308	2255	307	26%	308B	6	1916	1916	4486
				309A	6	0		
				309B	12	35960		
309	2202	306	67%	309U	6	8806	23958	57446
310*	932			310	6	0*	0*	--*

* - micro basin flow data inconclusive due to debris & backwater and/or imbalance with upstream sites.

Appendix

Microbasin Flow Isolation
Field Logs and Maps


309B
309A
308A
309U
308B
305
304
307
306
108
110
109
112
111
113
310
303
302
207
204
206
107
105
104
301
106
203
205
101
102
103
202
201


CIRCLE
SIGNORELLI
STREET
8"
10"
JUNE LANE
CHILES AVENUE
EDWARDS STREET
POPE
SH03A
SH03C
SH03
CHURCH STREET
8"/10"
SS GOES THRU SDMH
DRIVE
MITCHELL
3-13
3-14
12"
ADAMS STR
309B
309A
308A
SH01
ST.
JAMES
DR.
HASTY CT.
CT.
JAMES
COURT
WALLIS
10"
SH02B
HIGHWAY 29)
AVENUE
2-34
2-36
2-37
(STATE
MONEY WAY
309D
KEARNEY STREET
6"
STREET
307
SPRING
TAINTER
4"
MAIN STREET
SH02A
AVENUE
305
306
2-38
304
2-33
PINE STREET
OAK
2-58
2-32
207
2-59
2-60
4"
ANDREA AVENUE
2-62
KEARNEY
2-64
2-61
PLACE
2-65
204
5-4A
5-4
206
5-3
5-18
MADRONA
5-22A
4"
LH
PINE STREET
STOCKTON
4-40
4-39A
4-45
ALLYN
4-44
4-42
4-39
4-36
ADAMS
107
106
1-32
1-39
CHARTER
OAK AVENUE

FORCE MAI
PRATT
6-11
VOELKER CT.
6-10
6-12
6-9
310
DRIVE
CRINELLA
PUMP
STATION
6-19
6-18
301
6-13
302
303
6-22
10"/8"
6-21
6-17
PARK
6-14
STREET
HENRY CT.
6-15A
6-5
6-6
6-7
6-15
DRIVE
6-8
4" F.M.
CRINELLA
2-29
6-4
FULTON
8"
RAILROAD
6-3
ALEXANDER
COURT
4"
2-30
8"
6-2
6-1
LIBRARY LANE
ADAMS STREET
GRANGER COURT
GRANGER WAY
AVENUE
QUAIL
COURT
ELMHURST
2-60
2-31
2-59
207
306
2-38
MAIN STREET
AVENUE
8"
13
5-12
8"
203
2-32
5-10
SPRING
5-7
5-5
2-61
PLACE
2-65
ANDREA AVENUE
4"
6"
OAK
2-33
2-58
STREET
SPRING MTN. CT.
5-9
MOUNTAIN
5-6
4"
8"/6"
5-4A
ROAD
2-62
KEARNEY
2-64
2-37
(STATE
HIGHWAY
SH02B
5-8
2-33

202
203
201
205
204
206
207
306
304
106
GRANGER COURT
GRANGER WAY
AVENUE
QUAIL
COURT
ELMHURST
SPRING
SPRING MTN. CT.
MOUNTAIN
ROAD
HILLVIEW
DORIS AVE.
DORIS CT.
STOCKTON
STREET
VINEYARD
AVENUE
MADRONA
DEAN YORK LANE
SCOTT
STREET
ALLYN
ALEXANDER
COURT
FULTON
RAILROAD
ANDREA AVENUE
PLACE
KEARNEY
OAK
STREET
PINE
STREET
PINE STREET
STREET
STOCKTON
STREET
LH
STREET
5-1
6-3
6-2
6-1
2-30
2-31
2-60
2-59
2-61
2-65
2-62
2-64
2-32
2-33
2-58
2-33
5-13
5-12
5-14
5-10
5-15
5-30
5-9
5-16
5-29
5-17
5-27
5-28
5-26
5-20
5-19
5-25
5-24
5-23
5-7
5-6
5-5
5-4A
5-8
5-4
5-3
5-18
5-22A
4-49
4-48
4-47
4-46
4-45
4-44
4-40
4-39A
8"
6"
4"

MADRONA
ST
HUDSON
4-16
4-15
4-8
4-9
4-10
8"
BIRCH AVE.
4-11
4-21
SPRINGBROOK CT.
VALLEYVIEW STREET
4-22
4-20
4-17
OLIVE AVENUE
4-12
BIRCH STREET
4"/8"
4-18
4-13
4-13A
4-26
4-25
AVENUE
STREET
4-23
4-24
4-24A
SPRING
REISLING WAY
SYLVANER
CHABLIS CIRCLE
PINOT WAY
CHARDONNAY WAY
COLUMBARD CT.
AVENUE
SYLVANER
VALLEJO
STREET

106
107
108
109
110
111
112
113
307
308A
SCOTT STREET
MADRONA
ALLYN
PINE STREET
ADAMS
TAINTER
STREET
KEARNEY STREET
SPRING
MITCHELL
DRIVE
SS GOES THRU SDMH
HASTY CT.
ST. JAMES CT.
JAMES
WALLIS COURT
DR.
SH01
CIRCLE
VOORHEES
REED CT.
NEMO CT.
HUDSON
AVENUE
CRANE
This pipe not observed coming into manhole. Therefore, 10" line on Mitchell was flow tested.
5-24
5-22A
4-48
4-47
4-46
4-45
4-44
4-43
4-42
4-40
4-39A
4-39
4-36
4-37
4-34
4-33A
4-33
4-32A
4-32
4-30
4-29
4-27
4-16
4-15
4-8
4-9
4-10
3-13
4-21
8"
6"
4"
10"

Manhole Surveys

City of St. Helena
Man Hole Survey

MH #	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
1-12	Pope St at Pope St Bridge				
1-13					
1-14	College Ave & Pope St				
1-15	Peppertree Cir & Pope St				
1-16	Pope St				
1-17	Pope St. 605				
1-17A	Pope St. & Starr Ave				
1-18	Pope St 601 east prop. Line				
1-19	Pope St 601 (West Prop. Line in driveway)				
1-20	Pope St 601 (east prop. line in backyard)				
1-21	Granda Ct 764 (inside yard next to sidewalk)				
1-22	Granda Ct 751				
1-23	Granda Ct. (couldn't find)				
1-24	Granda Ct. 763				
1-25	Mariposa & Pope St.				
1-26	Granda Ct. & Mariposa				
1-27	Mariposa 932				
1-28	Mariposa 923 (in driveway)				
1-28A	Mariposa 923 (in driveway)				
129	Mariposa & McCorkle				
1-29A	McCorkle Ave 714				
1-30	Allison Ave & Pope St.				
1-31	Allison Ave & Brown St				
1-32	Brown St. 972				
1-33	Allison Ave & McCorkle Ave				
1-34	McCorkle Ave 960				
1-35	McCorkle Ave 963				
1-36	Allison Ave & Charter Oak Ave				
1-37	Charter Oak Ave 1026				
1-37A	Charter Oak Ave 942				
1-38	Charter Oak Ave 1050				
1-38A	Charter Oak Ave 1050				
1-39	Main St. 801				
1-40	Main St. 789				
2-01	Hunts Grove & Mobilehome Park				
2-02	Hunts Grove				
2-03	Hunt Ave & Starr Ave				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
2-05	Hunt Ave & Starr Ave				
2-06	Hunt Ave 709				
2-07	Hunt Ave & Monte Vista				
2-08	Hunt Ave & Monte Vista				
2-09	Monte Vista (end of street in circle)				
2-10	Grove Ct & Hunt Ave				
2-11	Hunt Ave 906				
2-12	Edwards St & Hunt Ave				
2-13	Hunt Ave Safeway Driveway				
2-14	Church St & Hunt Ave				
2-15	Safeway parking lot				
2-16	Safeway parking lot (north side)				
2-17	Grove Ct & Hunt Ave				
2-18	Hunt Ave 921				
2-18A	Hunt Ave 867				
2-18B	Hunt Ave 829				
2-18C	Hunt Ave 765				
2-19	Hunt Ave 943				
2-20	Hunt Ave 1017				
2-21	Hunt Ave & Railroad Ave				
2-22	Hunt Ave & Railroad Ave				
2-23	Railroad Ave 1327				
2-24	Railroad Ave 1345				
2-25	Adams St & Railroad Ave				
2-26	Railroad Ave 1461				
2-26A	Railroad Ave 1417				
2-27	Railroad Ave at Fire House				
2-28	Railroad Ave 1547				
2-29	Fulton Ave & Railroad Ave				
2-30	Fulton Ave				
2-31	Madrona Ave 1220				
2-32	Madrona Ave & Oak Ave				211'
2-33	Madrona Ave 1330				
2-34	Hunt Ave & Main St				
2-35	Main St 1331				
2-36	Main St 1338 (clean out)				
2-37	Adams St & Main St				
2-38	Main St & Pine St				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
2-40	Adams St & Oak Ave				
2-41	Adams St & Kearney St				
2-42	Kearney St 1459				
2-44	Kearney St 1519				
2-45	Adams St 1410				
2-46	Pine St (alley between pine & Adams)				
2-46A	Pine St (alley between pine & Adams)				
2-47	Pine St 1515 (Alley)				
2-48	Pine St 1515 (clean out)				
2-49	Pine St 1540 (clean out)				
2-50	Adams St 1518				
2-51	Adams St & Stockton St				
2-52	Stockton St 1515				
2-53	Adams St 1706 (clean out)				
2-54	Oak Ave 1445	5'10	6"X6"	clay	
2-55	Oak & Pine	5'	6"X6"	clay	293'
2-56	Pine St. 1325				
2-57	Pine St. 1337 (clean out)				
2-58	Oak Ave 1532	5'6"	6" X 6"	clay	195'
2-59	Oak Ave 1621				
2-60	Oak Ave 1745				
2-62	Kearney St. 1650				
2-63	Madrona Ave 1420 (back yard)				
2-64	Spring Mt Rd (back yard)				
2-65	Spring Mt Rd 1656 (back yard)				
3-03	Pope St 924				
3-04	Edwards St & Pope St				
3-05	Church St & Pope St				
3-05A	Pope St (between R/R tracks & Church St)				
3-06	Pope St 924				
3-07	Pope St 924				
3-08	Edwards St & Pope St				
3-08A	Edwards St 1150				
3-09	Edwards St 1220				
3-10	Church St & Pope St				
3-11	Church St 3-10				
3-12	Main St & Pope St (on Pope St)				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
3-12A	Main St & Pope St (on Main St)				
3-13	Main St 1111				
3-14	Main St & Spring St				
3-15	Main St & Mitchell Dr				
3-16	Mitchell Dr between Main St 7 Oak Ave				
3-17	Mitchell Dr between Main St 7 Oak Ave				
3-18	Mitchell Dr & Oak Ave				
3-19	Mitchell Dr 1340				
3-20	Mitchell Dr & St James Cir				
3-21	Oak ave 1111				
3-22	Oak Ave & Spring St				
3-23	Oak Ave & Tainter St				
3-24	Tainter St 1340				
3-25	Kearney St & Tainter St				
3-26	Tainter St 1550				
3-27	Oak Ave & Spring St (@10' west of oak)				
3-27A	Kearney St & Spring St				
3-28	Spring St 1515				
3-29	Spring St & Stockton St				
3-30	Spring St 1640				
3-31	Spring St. 1712 (cleanout)				
3-32	Stockton St 1213				
3-33	Stockton St 1240 (cleanout)				
3-34	Stockton St & Tainter				
3-35	Stockton St 1318 (cleanout)				
3-36	Stockton St. 1334 (cleanout)				
3-37	Adams St 1611 Manhole on Stockton				
3-38	Tainter St 1714				
4-01	Mitchell Dr & St James Cir				
4-02	Mitchell Dr. at bridge				
4-03	Mitchell Dr & Voorhees Cir				
4-04					
4-05	Mitchell Dr & Voorhees Cir				
4-06	Voorhees Cir 1554 (in backyard)				
4-07	Voorhees Cir (in Baldwin Park)				
4-08	Mitchell Dr & North Crane Ave				
4-09	North Crane Ave 969				
4-10	Birch St & North Crane				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
4-11	Birch St & Hudson Ave				
4-12	Birch St 2020				
4-13	Birch St & Valley View St				
4-13A	Valley View Ave 945				
4-14	Hudson Ave & Olive Ave				
4-15	Hudson Ave1154				
4-16	Hudson Ave 1190				
4-17	Olive Ave 2021				
4-18	Olive Ave & Valley View St				
4-19	Valley View St 1094				
4-20	Valley View St 1181				
4-22	Spring St 2090				
4-22A	Spring Brook Ct (end)				
4-22B	Spring St & Spring Brook Ct				
4-23	Spring St & Sylvaner Ave				
4-24	Spring St 2222				
4-24A	Spring St 2322				
4-25	Sylvaner Ave 1290				
4-26	Sylvaner Ave 1317				
4-27	North Crane Ave 1096				
4-28	Spring St 1735 (manhole on North Crane Ave)				
4-29	North Crane Ave & Spring St				
4-30	Spring St 1712 (cleanout)				
4-31	Allyn Ave & Spring St				
4-31A	Spring St 1922				
4-32	Hudson Ave & Spring St.				
4-32A	Hudson Ave 1256				
4-32B	Hudson Ave 1256				
4-33	Adams St & Hudson Ave				
4-33A	Hudson Ave & Pine St				
4-34	Hudson 1544				
4-35	Allyn 1217				
4-35A	Allyn Ave & Tainter St				
4-36	Adams St & Allyn Ave				
4-37	Adams 1829				
4-38	Adams St 1717 (cleanout)				
4-39	Allyn Ave 1416				
4-39A	Allyn ave & Pine St				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
4-40	Pine St 1701				
4-41	Pine St (@ 25' west of Allyn Ave)				
4-42	Pine St 1849				
4-43	Pine St 1837 (cleanout in sidewalk)				
4-44	Allyn Ave 1556 (cleanout)				
4-45	Allyn Ave & Madrona Ave				
4-46	Madrona Ave & Scott St				
4-47	Scott St 1636				
4-48	Hillview PL & Scott St				
4-49	Scott St 1770				
5-01	Kearney St & Madrona Ave				
5-02	Madrona Ave 1480				
5-03	Madrona Ave & Spring Mt Rd				
5-04	Spring Mt Rd 1651				
5-04A	Hillview Pl & Spring Mt Rd				
5-05	Spring Mt Rd 1759				
5-06	Spring Mt Rd 1777 (in Gutter)				
5-07	Elm Hurst Ave & Spring Mt Rd				
5-08	Elm Hurst Ave 1521 (West of Spring Mt Rd)				
5-09	Spring Mt Ct 1806				
5-10	Spring Mt Ct 1837				
5-11	Spring Mt Rd 1820				
5-12	Spring Mt Rd 1861				
5-13	Spring Mt Rd 1975				
5-14	Dean York Ln 1591				
5-15	Dean York Ln 1600				
5-16	Dean York Ln 1704				
5-17	Dean York Ave 1740				
5-17A	Dean York Ave 1740				
5-18	Madrona Ave & Stockton St				
5-19	Hillview Pl & Stockton St				
5-19A	Stockton St 1638				
5-20	Stockton St 1761				
5-21	Hillview Pl (mid block REMOVED)				
5-22	Madrona Ave 1722 (cleanout)				
5-22A	Madrona Ave & Vineyard Ave				
5-23	Vineyard Ave 1633				
5-24	Hillview Pl & Vineyard Ave				

City of St. Helena
Man Hole Survey

	MH Location	MH Depth	Pipe size In-Out	Type of pipe	Distance to downstream MH
5-25	Vineyard Ave 1797				
5-26	Doris Ct & Vineyard Ave				
5-27	Doris Ct 1611 (cleanout)				
5-28	Doris Ave & Vineyard Ave				
5-29	Vineyard Ave 1932				
5-30	Vineyard Ave 1964				
5-31	Vineyard Ave 1969				
6-01	Madrona Ave & Main St				
6-02	Alexander Ct & Main St				
6-03	Main St 1648				
6-04	Crinella Dr & Main St				
6-04A	Main St at Crinella ??				
6-05	Crinella Dr (at pumphouse)				
6-05A	Crinella Dr 1759				
6-06	Crinella Dr 1726				
6-07	Crinella Dr 1045				
6-08	Crinella Dr 1095				
6-09	Crinella Dr 1782				
6-10	Crinell Dr & Volker Ct				
6-11	Volker Ct 31				
6-12	Crinella Dr 1808				
6-13	Christine Ct 24				
6-14	Christine Ct& Park St				
6-15	Henery Ct & Park St				
6-15A	Henery Ct 24 (cleanout)				
6-16	Park St 1707 (cleanout)				
6-17	Crinella Dr & Park St				
6-18	Park St 1832 (cleanout)				
6-19	Park St & Pratt Ave				
6-20	Main St & Pratt Ave (on Pratt Ave)				
6-21	Main St & Pratt Ave (on Main St)				
6-21A	Main St 1855				
6-22	Main St 1915				
6-23	Main St 1915				
6-24	Main St 1915				

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
CHARTER OAK & MAIN 1-39	3-13-91	6"	6"	½"	4'	GOOD
CHARTER OAK & TRAVIGNE 1-38	" "	6"	6"	½"	6'2"	GOOD
CHARTER OAK 1027 1-38A	" "	6"	6"	½"	5'9"	GOOD
CHARTER OAK 942 1-37	" "	6"	6"	½"	5'6"	GOOD
CHARTER OAK & ALLISON 1-36	" "	6"	6"	1"	5'3"	GOOD
ALLISON & McCORKLE 1-33	" "	6"	6"	½"	6'	GOOD
McCORKLE 962 1-35	" "	4"	4"	0	2'4"	GOOD
ALLISON & BROWN 1-31	" "	6"	6"	½"	6'4"	GOOD
ALLISON & POPE 1-30	" "	6"	12"	3"	9'	GOOD
POPE & MARIPOSA 1-25	" "	12"	12"	1"	8'	GOOD
MARIPOSA GRANADA 1-26	" "	8"	8"	0"	5'4"	GOOD
GRANADA 751 1-24	" "	4"	4"	0	4'	GOOD
MARIPOSA 933 1-27	" "	8"	8"	0	4'	GOOD
MARIPOSA McCORKLE 1-29	" "	8"	8"	0	6'	GOOD
NEW McCORKLE 1-29A	" "	6"	6"	0	CLEAN OUT	GOOD
POPE STRALLA 1-19	" "	12"	12"	1"	7'6"	GOOD
POPE 610 1-18	" "	12"	12"	2"	7'2"	GOOD
POPE 610 1-17	" "	12"	12"	2"	7'2"	GOOD
POPE 605 1-16	" "	12"	12"	2"	7'	GOOD
POPE 456 1-15	" "	12"	12"	2"	6'3"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
POPE - ACROSS MOBILE PK	3-13-91	12"	12"	2"	6'	GOOD
POPE GRANDE DR. 1-14	" "	12"	18"	5"	20'	GOOD - STEPS
SYLVANER 1645 4-26	" "	6"	6"	2"	5'5"	GOOD
SYLVANER 1675 4-25	" "	6"	6"	2"	5'	GOOD
SPRING ST 4-24A	" "					MAN HOLES COVERED
SPRING ST 4-24	" "					" " "
SPRING ST & SYLVANER 4-23	" "	6"	6"	½"	5'7"	GOOD
SPRING ST 2660 4-22	" "	6"	6"	½"	5'	GOOD
SPRING ST & CALVARY CHURCH	" "	6"	6"	½"	7'	GOOD
SPRING ST 2222	" "	6"	6"	½"	6'	GOOD
SPRING BROOK CT 1250	" "	6"	6"	½"	5'3"	GOOD
SPRING BROOK CT SPRING.	" "	6"	6"	4"	5'8"	GOOD
SPRING & VALLEY VIEW 4-21	" "	6"	6"	2"	5'	GOOD
VALLEY VIEW 1180 4-20	" "	6"	6"	4"	4'6"	GOOD
VALLEY VIEW 1094 4-19	" "	6"	6"	3"	4'6"	GOOD
VALLEY VIEW 993 & OLIVE 4-18	" "	6"	6"	3"	4'2"	GOOD
VALLEY VIEW 957 & BIRCH 4-13	" "	6"	8"	2"	4'3"	GOOD
OLIVE 2011 4-17	" "	6"	6"	1"	4'	GOOD
BIRCH 2020 4-12	" "	8"	8"	2"	4'	GOOD
HUDSON 4-16						MAN HOLE COVERED

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
HUDSON 1155 4-15	3-13-91	6"	6"	1"	3'	GOOD
HUDSON & OLIVE, 4-14	" "	6"	6"	1"	3'5"	GOOD
HUDSON & BIRCH, 4-11	" "	6"	8"	3"	3'10"	GOOD
CRANE & BIRCH, 4-10	" "	8"	8"	5"	4'2"	GOOD
CRANE & 970, 4-9	" "	8"	8"	3"	6'	GOOD
CRANE & MITCHELL, 4-8	" "	8"	8"	4"	6'4"	GOOD
MITCHELL & YOORHEES 4-5	" "	8"	10"	4"	6'	GOOD
MITCHELL ACROSS FIELD 4-4	" "	10"	10"	4"	4'4"	GOOD
MITCHELL YOORHEES CIR- 4-3	" "	10"	10"	4"	5'7"	GOOD
MITCHELL ACROSS CREEK 4-2	" "	10"	8"	4"	4'2"	GOOD - STEPS
MITCHELL ACROSS WALLIS CT. 4-1	" "	8"	8"	4"	6'6"	GOOD
MITCHELL AT ST. JAMES CT. 3-20	" "	8"	8"	4"	5'	GOOD
MITCHELL 1340, 3-19	" "	8"	8"	6"	4'	GOOD
MITCHELL & OAK 3-18	" "	8"	8"	6"	4'	GOOD
MITCHELL 3-17 3-16	" "					STORM DRAINS
MITCHELL MAIN 3-15	3-13-91	8"	8"	3"	3'7"	GOOD
MAIN POPE, 3-12	" "	8"	8"	11"	6'	GOOD
POPE & CHURCH 999, 3-5A	" "	8"	8"	3"	3'5"	GOOD
POPE & CHURCH 1120 3-5	" "	8"	8"	3"	3'5"	GOOD
POPE 917 3-3	" "	8"	8"	4"	3'5"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
COLOMBARD 2659	3-14-91	6"	6"	1"	4'5"	GOOD + STEPS
CHARDONNAY WAY 1655	" "	6"	6"	1"	4'5"	GOOD
PINOT 2620	" "	6"	6"	1/2"	5'	GOOD STEPS
PINOT 2590	" "	6"	6"	1"	5'	GOOD STEPS
CHABUS CR. 1538	" "	6"	6"	1/2"	5'	GOOD + STEPS
CHABUS CR 1506	" "					CAR ON MAN HOLE
PINOT & CHABUS CR 2543	" "	6"	6"	1"	5'5"	GOOD + STEPS
PINOT 2529	" "					MAN HOLE PAVED
SYLVANER 1517	" "	6"	6"	1/2"	5'3"	GOOD + STEPS
SYLVANER 1501	" "	6"	6"	1"	9'6"	GOOD
SYLVANER 1434	" "	6"	6"	1/2"	5'4"	GOOD
SYLVANER 1401	" "	6"	6"	1/2"	5'5"	GOOD
SYLVANER 1362	" "	6"	6"	2 1/2"	6'	GOOD
SYLVANER 1317	" "	6"	6"	2"	5'5"	GOOD
SYLVANER 1291	" "	6"	6"	2"	5'5"	GOOD
HUDSON AT MADRONA 1544, 4.34	" "	4"	4"	0	5'	GOOD
HUDSON & PINE 4.33A	" "	4"	6"	1/2"	5'6"	GOOD
HUDSON & ADAMS, 4.33	" "	6"	6"	1/2"	5'6"	GOOD
HUDSON & SPRING, 4.32	" "	6"	6"	1"	5'7"	GOOD + STEPS
SPRING & ALLEN 4.31	" "	6"	6"	4"	6'8"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location		Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
SPRING & CRANE	4-29	3-14-91	8"	8"	4"	6'7"	LEAK EAST SIDE
CRANE 1735	4-28	" "	8"	8"	3"	7'	GOOD
CRANE 1096	4-27	" "	8"	8"	4"	7'3"	LEAKS / EAST / WEST
SCOTT 1761	4-49	" "	8"	8"	½"	8'	GOOD
SCOTT HILLVIEW	4-48	" "	8"	8"	1"	8'	GOOD
SCOTT 1629	4-47	" "	8"	8"	½"	8'	GOOD
SCOTT & MADRONA	4-46	" "	8"	8"	½"	5'3"	GOOD
ALLYN MADRONA	4-45	" "	8"	8"	1½"	4'7"	GOOD
PINE	4-40	" "					
PINE 1853	4-42	" "	6"	6"	0	2'	GOOD
ALLYN & PINE	4-39A	" "	8"	6"	2"	4'	GOOD
ALLYN 1416	4-39	" "	6"	6"	2"	3'8"	GOOD
ADAMS	4-37	" "					
ALLYN & ADAMS	4-36	" "	6"	6"	2"	4'8"	GOOD
ADAMS	4-38	" "					
ALLYN 1301	4-35A	" "	6"	6"	2"	4'3"	GOOD GAS PIPE
VINEYARD 1964	5-30	" "	4"	4"	½"	3'7"	GOOD
VINEYARD 1924	5 29	" "	4"	6"	½"	4'	GOOD
VINEYARD DORIS AVE	5 28	" "	6"	6"	½"	8'5"	GOOD
VINEYARD	5-26	" "	6"	6"	½"	8'5"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
VINEYARD HILLVIEW 5-24	3-14-91	6"	6"	½"	6'	GOOD
VINEYARD 1638 5-23	" "	6"	6"	3"	4'6"	GOOD
MADRONA VINEYARD 5-22A	" "	6"	6"	½"	5'	GOOD
STOCKTON 1765 5-20	" "	4"	4"	½"	4'3"	GOOD
STOCKTON HILLVIEW 5-19	" "	4"	6"	1"	4'5"	GOOD
MADRONA STOCKTON 5-18	" "	6"	6"	2"	4'	GOOD
DEANYORK 1740 5-17	" "	8"	8"	Ø	9'	GOOD
DEANYORK 1704 5-16	" "	8"	8"	Ø	9'	GOOD
DEANYORK 1600 5-15	" "	8"	8"	Ø	9'	GOOD
DEANYORK 1581 5-14	" "	8"	8"	Ø	12'	GOOD
SPRING MT RD 2150	" "	6"	8"	Ø	5'	GOOD
SPRING MT RD DEANYORK 5-13	" "	8"	8"	1"	12'	GOOD
SPRING MT CT 1843 5-10	" "	6"	6"	½"	5'6"	GOOD
SPRING MT CT 1800 5-9	" "	6"	6"	½"	5'5"	GOOD
SPRING MT ALLEY WY. 1521 5-8	" "	6"	6"	½"	5'4"	GOOD
SPRING MT RD 1861 5-12	" "	8"	8"	2"	8'4"	GOOD
SPRING MT RD 1850 5-11	" "	8"	8"	2"	8'4"	GOOD
SPRING MT RD ELMHURST 5-7	" "	8"	8"	1"	7'2"	GOOD
SPRING MT RD 1775 5-6	" "	4"	8"	Ø	2'	GOOD
SPRING MT RD 1709 5-5	" "	8"	6"	2"	4'2"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
SPRING MT RD HILLVIEW 5-4A	3/14/91	6"	6"	1/2"	4'7"	LEAKS 1-NORTH 1WEST
SPRING MT RD 1650 5-4	" "	6"	6"	1/2"	4'7"	GOOD
SPRING MT RD MADRONA 5-3	" "	6"	6"	1"	3'6"	GOOD
MADRONA 1420 5-2	" "	6"	6"	4"	4'	GOOD
MADRONA KEARNY 5-1	" "	6"	6"	4"	4'3"	GOOD
MADRONA 1330 2-33	" "	6"	6"	4"	4'9"	GOOD
MADRONA OAK 2-32	" "	6"	6"	4"	5'5"	GOOD
MADRONA 2-31	" "	6"	6"	4"	5'3"	GOOD
FULTON 1136 2-30	" "	6"	6"	3"	4'7"	GOOD
FULTON RAILROAD 2-29	" "	6"	6"	3"	3'6"	GOOD
RAILROAD 1547 2-28	" "	6"	6"	3"	3'3"	GOOD
RAILROAD PINE 2-27	" "	6"	6"	3"	4'1"	GOOD
RAILROAD BEHIND MORTUARY 2-26	" "	6"	6"	3"	4'1"	GOOD
RAILROAD ADAMS 2-25	" "	6"	6"	3"	3'8"	GOOD
RAILROAD 1345 2-24	" "	6"	6"	3"	3'7"	GOOD
RAILROAD HUNT 2-22	" "	6"	6"	3"	3'6"	GOOD
STOCKTON 1516 2-52	" "	4"	4"	⌀	4'6"	GOOD
STOCKTON ADAMS 2-51	" "	4"	6"	1/2"	4'	GOOD
PINE 1325 2-47	" "	4"	4"	1/2"	5'	GOOD
PINE-ALLEY AT ADAMS 2-46	" "	4"	6"	1/2"	2 1/2"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
KEARNY 2-44	3-15-91	4"	6"	1/2"	2'	GOOD
KEARNY PINE 2-43	" "	6"	6"	1/2"	2'	GOOD
ADAMS 1518 2-50	" "	6"	6"	1/2"	4'1"	GOOD
ADAMS 1410 2-45	" "	6"	6"	3"	3'9"	GOOD
ADAMS KEARNY 2-41	" "	6"	6"	3"	4'6"	GOOD
ADAMS 1224 2-39	" "	6"	6"	3"	6'2"	GOOD
TAINTER 1714 3-38	" "	4"	4"	1"	3'2"	GOOD
STOCKTON 1348 3-37	" "				4'6"	BALL
TAINTER 1550 3-26	" "	~~4"~~ 6"	~~4"~~ 6"	1"/3"	2'8"	GOOD
TAINTER 1413 3-25	" "	~~4"~~	~~4"~~	1"	2'8"	GOOD
TAINTER CATHOLIC SCH. 3-24	" "	~~4"~~	~~4"~~	1"	2'8"	GOOD
SPRING STOCKTON 3-29	" "	6"	6"	1/2"	7'2"	GOOD
SPRING 1520 3-28	" "	6"	6"	2"	7'6"	GOOD
SPRING 1401 3-27A	" "	6"	6"	2"	4'2"	GOOD
SPRING OAK 3-27	" "	6"	8"	2"	3'4"	GOOD
KEARNY TO OAK 2-61	" "	4"	6"	1/2"	2'	GOOD
KEARNY TO OAK 2-62	" "	4"	6"	1/2"	2'	GOOD
OAK 1745 2-60	" "	6"	6"	1/2"	2'	GOOD
OAK 1621 2-59	" "	6"	6"	1"	4'3"	GOOD
OAK 1532 2-58	" "	6"	6"	1/2"	5'3"	LEAK W. BOTTOM

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location		Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
OAK PINE	2-55	3-15-91	6"	6"	2"	5'4"	GOOD
OAK 1445	2-54	" "	6"	6"	3"	5'6"	GOOD
OAK ADAMS	2-40	" "	6"	6"	4"	3'7"	GOOD
OAK TAINTER	3-23	" "	6"	6"	4"	3'7"	GOOD
OAK SPRING	3-22	" "	6"	8"	2"	3'4"	GOOD
OAK 1111	3-21	" "	8"	8"	4"	2'5"	GOOD
MAIN 1915	6-22	" "	8"	8"	2"	15'	GOOD
MAIN	6-21	" "					COVERED
PRATT MAIN	6-20	" "	8"	8"	2"	10'	GOOD
PRATT PARK	6-19	" "	8"	6"	4"	8'5	GOOD
PARK 1807	6-17	" "	6"	6"	3"	5'5"	LEAK S. SIDE STEPS
PARK 1747	6-14	" "	6"	6"	2"	6'3"	LEAK E. SIDE STEPS
PARK 1723	6-15	" "	6"	6"	1"	5'4"	LEAK W. SIDE STEPS
CRINELLA 1095	6-8	" "	6"	6"	½"	3'8"	GOOD
CRINELLA 1045	6-7	" "	6"	6"	½"	4'2"	GOOD
CRINELLA 1726	6-6	" "	6"	6"	½"	3'8"	GOOD
CRINELLA 1759	6-5	" "	6"	6"	4"	4'3"	GOOD
CRINELLA 1808	6-12	" "	6"	6"	½"	4'9"	1 LEAK N. SIDE STEPS
CRINELLA 1807	6-10	" "	6"	6"	½"	4'	GOOD
CRINELLA 1782	6-9	" "	6"	6"	1"	3'6"	1 LEAK E. SIDE STEPS

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location		Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
ALEXANDER CT 1635	6-2	3-15-91	4"	6"	Ø	2'	GOOD
MAIN MADRONA	6-1	" "	6"	6"	4"	5'7"	GOOD
MAIN PINE	2-38	" "	6"	6"	4"	5'	GOOD
MAIN ADAMS	2-37	" "	6"	6"	4"	6'8"	GOOD
MAIN 1335	2-36	" "	6"	6"	4"	6'2"	GOOD
MAIN 1289	2-34	" "	6"	6"	4"	5'9"	GOOD
MAIN SPRING	3-14	" "	6"	6"	3"	5'5"	GOOD
MAIN 1080	3-13	" "	6"	8"	4"	4'7"	GOOD
CHURCH 1250	3-11	" "	4"	10"	Ø	4'	GOOD
EDWARDS 1220	3-9	" "	6"	6"	½"	3'5"	GOOD
EDWARDS 1150	3-8A	" "	6"	6"	½"	6'	GOOD
POPE 975	3-8	" "	10"	10"	4"	4'5"	GOOD
POPE 917	3-6	" "	10"	10"	2"	3'5"	GOOD
HUNT 1113	2-21	" "	12"	12"	6"	8'2"	GOOD
HUNT 1017	2-20	" "	12"	12"	5"	8'	GOOD
HUNT 948	2-19	" "	12"	12"	5"	8'6"	GOOD
HUNT 940	2-18	" "	12"	12"	5"	7'2"	GOOD
HUNT 921		" "	12"	12"	5"	8'3"	GOOD
HUNT 765	2-17	" "	12"	12"	6"	7'6"	GOOD
HUNT 751		" "	12"	12"	6"	7'5"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
HUNT 723 2-7	3-15-91	12"	12"	6"	7'6"	GOOD
HUNT 709 2-6	" "	12"	12"	6"	8'8"	GOOD
HUNT END 2-5	" "	12"	12"	6"	7'4"	GOOD
HUNT END 2-3	" "	12"	12"	6"	8'4"	GOOD
HUNT SAFEWAY 2-14	" "	8"	8"	½"	4'4"	GOOD
HUNT SAFEWAY 2-13	" "	8"	8"	1"	4'3"	GOOD
HUNT 1906 SAFEWAY 2-11	" "	8"	8"	1"	5'	GOOD
HUNT 821 2-10	" "	8"	8"	1"	35"	GOOD
HUNT MONTE VISTA 2-8	" "	8"	8"	2"	3'7"	GOOD
MONTE VISTA 347 2-9	" "	6"	8"	0	3'4"	GOOD
GROVE CT 1395	" "	6"	8"	0	4'7"	GOOD
ADAMS 1001	" "	6"	6"	½"	2'3"	GOOD
ADAMS 1000	" "	6"	6"	½"	2'3"	GOOD
ADAMS LA PRIMA	" "	6"	6"	½"	5'2"	GOOD
VINTAGE	" "	8"	8"	½"	6'3"	GOOD
VINTAGE - LINCOLN FARMS	" "	8"	8"	½"	5'5"	GOOD
VINTAGE LAFATA	" "	8"	8"	0	4'5"	GOOD
LA FATA NEW CONST	" "	8"	8"	0	5'5"	GOOD
MAIN ST ZUMWALT	" "	8"	8"	½"	9'6"	GOOD
MAIN VIDOVICH 1-40	" "	6"	6"	½"	2'7"	GOOD

CITY OF ST. HELENA

SANITARY SEWER MANHOLE SURVEY

MARCH 1991

Manhole #/ Location	Date	Line Size In	Line Size Out	Flow in Inches	Depth of Manhole Flow to Street Level	Condition of Manhole
DOWDELL 899	3-15-91	8"	8"	0	8'1"	GOOD
DOWDELL 1035	" "	6"	6"	0	5'4"	GOOD
DOWDELL 1150	" "	6"	6"	0	5'4"	GOOD
FOUNTAIN END OF ST.	" "	6"	6"	0	36"	GOOD
ELMHURST GRAINGER	" "	6"	6"	0	3'	GOOD
ELMHURST QUAIL CT	" "	6"	6"	0	4'5"	GOOD
LIBRARY LN 1400	" "	6"	6"	½"	1'2"	GOOD
LIBRARY LN 1400	" "	6"	6"	½"	3'	GOOD

Sanitary Sewer Video Inspection Work Sheet

QUADRANT Nos. 4 1 3 2

CALIFORNIA PIPE SURVEY

(415) 883-3676

POST OFFICE BOX 3415 • SAN RAFAEL, CALIFORNIA 94912

SANITARY SEWERS -- WORK SHEET

CITY St. Helena
AREA TAPE NO. 4
MAP SHEET District 2
STREET Oak
MANHOLE NO. 2-55 TO NO. 2-40

CLEANED		T.V. INSPECTION							REPAIRED		
CREW LEADER AND DATE	REMARKS	LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS	DISTANCE	AIR TEST	SEAL
8/8/85	Televise		1'	X	X				Cracked pipe, offset joint			
Mark P.			4'				X		" "			
			19'	X					" "			
			24'	X					Lateral wye			
			33'						Roots			
			35'	X			X		Cracked pipe			
			39'						Roots			
			41'						"			
			52'	X			X		" cracked pipe			
			54'						"			
			79'	X					Lateral wye			
			82'				X		" tap			
			86'				X		" wye			
			89'	X					" tap			
			103'			X			Cracked pipe			
			114'	X			X		" "			

PIPE CONDITION Fair, roots, cracks, bad taps, slip line or replace

MANHOLE CONDITION Fair

GRADE Fair, up and down

REMARKS TV from MH 2-55, downstream through MH 2-54 to MH2-40

DIRECTION OF MEASUREMENT → ← FROM CENTER OF MANHOLE

MANHOLE NO. 2-55 Pine and Oak → MH 2-54 → MANHOLE NO. 2-40

CUES

PIPE SIZE	6"
TYPE OF PIPE	VCP
TYPE OF JOINT	
SECTION LENGTH	2'

T.V. INSPECTION

QUADRANT Nos: 4 1 / 3 2

LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS
	133'	X					Lateral wye
	135'				X		" tap
	149'				X		" wye
	153'			X	X		Cracked pipe
	159'						Roots
	173'						Bad roots
	179'						Roots
	187'	X					Lateral wye, roots
	203'	X			X		" tap
	208'	X	X				Cracked pipe
	258'				X		Lateral wye
	260'	X					" "
	272'	X					" tap, bad roots
	273'	X					Cracked pipe
	276'						Bad roots
	277'	X					Lateral tap
	283'	X			X		" "
	284'						Bad roots
	287'	X					Lateral wye, bad roots
	288'	X	X				Bad roots, cracked pipe
	290'						" "
	295'						MH 54, roots
	299'						Roots
	302'						"
	317'						[illegible]
	326'				X		Lateral wye, roots
	338'	X			X		" tap , [illegible] , cracked [illegible]
	342'				X		Cracked "
	354'	X	X				Cracked pipe, roots

T.V. INSPECTION

QUADRANT Nos: 4 1 / 3 2

LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS
	361'	X					Lateral wye
	375'				X		" "
	408'	X			X		Cracked pipe
	410'		X	X			" "
	444'			X	X		Lateral wye
*	445'	X			X		" tap, water running
	446'	X					" wye
	447'	X		X	X		Cracked pipe
	466'						Offset joint
	467'	X					Lateral wye
	480'	X			X		" tap
	482'	X			X		" "
*	491'				X		" " water running
	499'	X			X		" "
	506'			X	X		Cracked pipe
	514'	X			X		" "
	517'				X		Lateral wye
	521'	X					" "
	523'						Dip ½"
	528'						" end
	539'						" ½"
	543'						" end
	564'						" 3/4"
	568'						" end
	578'						" ½"
	581'						" end
	584'	X	X	X			Cracked pipe
	602'						MH 2-40

QUADRANT Nos.

4 1
3 2

CALIFORNIA PIPE SURVEY

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SANITARY SEWERS -- WORK SHEET

CITY St. Helena
AREA TAPE NO. 3864
MAP SHEET District 2
STREET Oak
MANHOLE NO. 2-32 TO NO. 2-55

CLEANED		T.V. INSPECTION							REPAIRED		
CREW LEADER AND DATE	REMARKS	LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS	DISTANCE	AIR TEST	SEAL
8/8/85	Thread and Televise		12'	X			X		Cracked pipe			
Mark P.			28'	X	X				Lateral wye			
			58'	X			X		Cracked pipe			
			62'	X			X		" "			
			80'	X			X		Broken joint			
			100'			X	X		Lateral wye, water running			
			101'	X			X		Cracked pipe			
			122'	X			X		" "			
			140'						Dip ¼"			
			146'	X	X				Lateral tap, dip end			
			151'	X			X		Cracked pipe joint			
			166'	X	X				Lateral wye			
			167'	X	X				" tap			
			180'			X	X		" wye			
			200'	X			X		Cracked joint			
			217'						MH 58			

PIPE CONDITION Fair, bad taps, cracked pipe, open joints, slip line or replace.

MANHOLE CONDITION Fair

GRADE Fair

REMARKS TV from MH 2-32, downstream through MH 58 to MH 2-55.

DIRECTION OF MEASUREMENT → ← FROM CENTER OF MANHOLE

MANHOLE NO. 2-32 → MH 58 → MANHOLE NO. 2-55

CUES

PIPE SIZE	6"
TYPE OF PIPE	VCP
TYPE OF JOINT	
SECTION LENGTH	2'

QUADRANT Nos (4 1 / 3 2)	T.V. INSPECTION						
LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS
	227'						Lateral tap, bad into main 1½" roots
	234'			X	X		" wye
	238'	X			X		" tap
	243'						Offset joint
	244'	X			X		Possible lateral tap or hole
	250'	X	X				Lateral wye
	252'	X			X		" tap or hole
	252'				X		" wye
	258'	X	X	X	X		Cracked pipe joint
	316'	X					Lateral wye, possible 6"
	337'				X		" tap
	339'				X		" wye
	348'						Change to Tape 4
	380'	X					Lateral wye
	383'				X		" "
	416'						MH 55

QUADRANT Nos (4 1 / 3 2)	T.V. INSPECTION						
LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS

QUADRANT Nos.

4 | 1
3 | 2

CALIFORNIA PIPE SURVEY

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SANITARY SEWERS -- WORK SHEET

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CITY St. Helena
AREA TAPE NO. 4-65
MAP SHEET Districts 2-3
STREET Dale
MANHOLE NO. 2-40 TO NO. 3-22

CLEANED		T.V. INSPECTION							REPAIRED		
CREW LEADER AND DATE	REMARKS	LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS	DISTANCE	AIR TEST	SEAL
8/8/85 Frank	TV		15'						Roots			
			48'	✓	✓				Cracked Pipe			
			70'			✓	✓		" "			
			99'						Roots			
			103'						"			
			107'						"			
			116'				✓		Lat. Wye			
			119'						"			
			125'						"			
			144'						"			
			152'						" Drip			
			157'						Drip End			
			162'						Roots			
			167'						"			
			168'				✓		Lat. Wye			
			171'				✓		" Tap			

PIPE CONDITION Fair to Bad - Roots - Cracks - Red Tape
MANHOLE CONDITION Fair
GRADE Fair
REMARKS TV from M.H. 2-40 downstream flow M.H. 3-23 to M.H. 3-22

DIRECTION OF MEASUREMENT → ← FROM CENTER OF MANHOLE

MANHOLE NO. 2-40 → M.H. 3-23 → MANHOLE NO. 3-22

PIPE SIZE	6"
TYPE OF PIPE	VCP
TYPE OF JOINT	
SECTION LENGTH	

T.V. INSPECTION

QUADRANT Nos: 4 | 1 / 3 | 2

LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS
	198'	✓					Sat. Wye
	207'				✓		" "
	218'						Roots
	232'		✓✓				
	239'	✓			✓		Cracked Pipe
	241'		✓✓				" Tap " "
	242'	✓	✓				" " " "
	255'	✓	✓		✓		" " " "
	261'						Roots
	265'				✓		" " " " " "
	286'						"
	294'						Dip ½
	301'	✓			✓		" Tap Roots " End
	319'				✓		" Wye
	334'			✓	✓		Cracked Pipe
	368'	✓					" "
	369'						~~Sat~~ ACP
	370'				✓		" " "
	373'						Sat VCP
	407'				✓		" "
	455'				✓		" " Dip ¾"
	468'						M.H. 3-23
	479'	✓					Cracked Pipe
C	481'	✓					Sat. Wye - 6" Water Running
	515'	✓✓					Change to Tape 5 Cracked Pipe
	544'			✓	✓		Dip " "
	545'				✓		Sat Wye
	548'						Root
	549'	✓					" "

T.V. INSPECTION

QUADRANT Nos: 4 | 1 / 3 | 2

LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS
	549.5'	✓			✓		Sat Tap Dip End
	570'	✓			✓		Cracked Pipe
	571'				✓		" Tap
	603'	✓					" " " "
	615'	✓✓					" "
	626'				✓		" Wye
	628'	✓					" " Dip ½
	637'						" ¾
	648'	✓			✓		" ½ " "
	665'						" End
	675'				✓		" "
	696'	✓					" Tap
	706'				✓		" Wye Dip ½"
	708'	✓					" "
	715'	✓			✓		" Tap " "
	717'	✓			✓		" " Roots " "
	721'	✓			✓		" " " "
	724'	✓			✓		" " " "
	736'	✓✓					" " " "
	736.8	✓			✓		" " " "
	754'				✓		" Tap
	762'	✓			✓		" " or Hole
	763'	✓			✓		" Tap & Wye or "
	764'	✓			✓		" " Root or Hole
	786'	✓					" Wye
	799'	✓✓					Cracked Pipe
	807'	✓			✓		" Tap or Hole
	810'	✓			✓		" " " "
	828'	✓			✓		" "

QUADRANT Nos.

4 | 1
3 | 2

CALIFORNIA PIPE SURVEY

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SANITARY SEWERS -- WORK SHEET

Page 2 of 2 Pages

CITY St. Helena
AREA TAPE NO. 465
MAP SHEET Sheets 263
STREET Oak
MANHOLE NO. 2-40 TO NO. 3-2

CLEANED		T.V. INSPECTION							REPAIRED		
CREW LEADER AND DATE	REMARKS	LEAK NO	DISTANCE READING	QUADRANT 1	2	3	4	PHOTO NO	REMARKS	DISTANCE	AIR TEST	SEAL
			838'						Lat to [redacted] Concrete Pipe ? Dip ½"			
			866'						M H. 3-22			

PIPE CONDITION

MANHOLE CONDITION

GRADE

REMARKS

DIRECTION OF MEASUREMENT → ← FROM CENTER OF MANHOLE

MANHOLE NO.

MANHOLE NO.

PIPE SIZE
TYPE OF PIPE
TYPE OF JOINT

Sanitary Sewer Maintenance Report

STREET DEPARTMENT

SANITARY SEWER MAINTENANCE REPORT

DATE: _____

START WORK _____ END WORK _____ EMERGENCY CALL: Yes___ No___

RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____

MANHOLES # _____ on _____ From _____ To _____ DATE _____

REPAIR _____ DATE _____
REPAIR _____ DATE _____

STOPPAGE LOCATION _____

Cause of stoppage, unusual conditions or added information

_____
_____

Equipment	Hours	Labor	Hours

_____
STREET FOREMAN

S T R E E T D E P A R T M E N T

SANITARY SEWER MAINTENANCE REPORT

DATE: _____ 19___

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED 365' L.F. on Allison From Pope To Brown DATE 9/27/06

RODDED 292' L.F. on Allison From Brown To McCorckle DATE " "

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

MANHOLES # _____ on _____ From _____ To _____ DATE _____

REPAIR _____ DATE _____

REPAIR _____ DATE _____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____

Street Foreman

STREET DEPARTMENT

DATE: JAN 2002 ~~19~~

SANITARY SEWER MAINTENANCE REPORT

START WORK _____ END WORK _____ EMERGENCY CALL Yes ____ No ____

RODDED	292	L.F. on	Allison	From	McCorckle	To	Brownst	DATE	1-29-02
RODDED	365'	L.F. on	"	From	Brown	To	Pope	DATE	6-6-02
RODDED	292'	L.F. on	"	From	McCorckle	To	Brown St	DATE	6-10-02
RODDED	234	L.F. on	"	From	McCorckle	To	Charter Oak	DATE	6-10-02
RODDED	365	L.F. on	Allison	From	Brown	To	Pope	DATE	1/21/03
RODDED	365'	L.F. on	Allison	From	Brown	To	Pope	DATE	3/18/03
RODDED	292'	L.F. on	Allison	From	McCorckle	To	Brown	DATE	3/18/03
RODDED	234'	L.F. on	"	From	~~Brown~~ McCorckle	To	Charter oak	DATE	3/18/03
RODDED	365'	L.F. on	"	From	Brown	To	Pope	DATE	9/15/03
RODDED	292'	L.F. on	"	From	McCorckle	To	Brown	DATE	9/15/03
RODDED	365'	L.F. on	"	From	Brown	To	Pope	DATE	1-20-04
RODDED	292'	L.F. on	"	From	McCorckle	To	Brown	DATE	1-20-04
RODDED	234'	L.F. on	"	From	McCorckle	To	Charter Oak	DATE	1-21-04
RODDED	365	L.F. on	Allison	From	Brown	To	Pope	DATE	11-15-04
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____
REPAIR	_____							DATE	_____
REPAIR	_____							DATE	_____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

S T R E E T D E P A R T M E N T

SANITARY SEWER MAINTENANCE REPORT

DATE: 11-8-04 19___

START WORK _____ END WORK _____ EMERGENCY CALL ___ Yes ___ No

RODDED 1119 L.F. on Adams From 1444 Adams To 1533 Pine DATE 11-8-04

RODDED 365 L.F. on Allison From Brown To Pope DATE 6-14-04

RODDED 292 L.F. on Allison From McCorckle To BROWN DATE 6-14-04

RODDED 234 L.F. on Allison From McCorckle To Chesterfield DATE 6-14-04

RODDED 449 L.F. on Adams From 1449 adams To Pine St DATE 9/17/04

376 Hunter 449 RODDED 449 L.F. on Alley From Adams To Pine DATE 12/06/04

RODDED 373 L.F. on Adams From 1444 To Tanten DATE 12/7/04

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

MANHOLES # _____ on _____ From _____ To _____ DATE _____

REPAIR _____ DATE _____

REPAIR _____ DATE _____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET DEPARTMENT

SANITARY SEWER MAINTENANCE REPORT

DATE: 1-21-03 19___

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED	193	L.F. on	Brown	From	933 Brown	To	Allison	DATE	[illegible]
RODDED	333	L.F. on	Brown	From	933 Brown	To	E-1	DATE	[illegible]
RODDED	193	L.F. on	Brown	From	Allison	To	933	DATE	3-18-03
RODDED	190	L.F. on	Birch	From	South crane & Birch	To	Birch & Hudson	DATE	10-28-03
RODDED	333	L.F. on	Brown	From	933	To	END	DATE	1-19-04
RODDED	65	L.F. on	Brown	From	School	To	Fence	DATE	1-19-04
RODDED	193	L.F. on	Brown	From	Allison	To	933	DATE	1-19-04
RODDED	333	L.F. on	Brown	From	933	To	END	DATE	1-20-04
RODDED	402	L.F. on	Brown	From	933	To	End	DATE	6-14-04
RODDED	193	L.F. on	Brown	From	933	To	Allison	DATE	6-14-04
RODDED	193	L.F. on	Brown	From	Allison	To	933	DATE	9-28-06
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____
REPAIR	_____							DATE	_____
REPAIR	_____							DATE	_____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET D 'ARTMENT
SANITARY SEWER MAINTENANCE REPORT

Rodded LF	Street	from x Street	to x Street	Date	Routine	Emergency	Info
96'	Crinella	1759	End Pumplke	1/19/07	X		Hydro
324'	Charter oak	1027	Tre Vigne	3/30/07	X		Hydro Vac Dema

S T R E E T D E P A R T M E N T

DATE: 2003 19

SANITARY SEWER MAINTENANCE REPORT

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED	324	L.F. on	Charter Oak	From	The Vigne	To	Charterock House	DATE	3/18/03
RODDED	316	L.F. on	Charter oak	From	942 Charter oak	To	Allison	DATE	3/19/03
RODDED	327	L.F. on	~~Charter oak~~	From	942 Charter oak	To	Charter oak House	DATE	3/19/03
RODDED	96'	L.F. on	crinella	From	259 crinella	To	Pump Station	DATE	10-28-03
RODDED	324'	L.F. on	Charter oak	From	The Vigne	To	charter itse	DATE	1-21-04
RODDED	327'	L.F. on	Charter oak	From	942 Charter	To	Charter oak house	DATE	1-27-04
RODDED	316'	L.F. on	Charter oak	From	942 Charter oak	To	Allison	DATE	1-27-04
RODDED	327	L.F. on	Charter oak	From	Charter oak	To	942 Charter oak	DATE	11-15-04
RODDED	324	L.F. on	Charter oak	From	Charterock Main	To	The Vigne	DATE	11-15-04
RODDED	252	L.F. on	[illegible]	From	1726	To	[illegible]	DATE	[illegible]
RODDED	175	L.F. on	[illegible]	From	[illegible]	To	[illegible]	DATE	[illegible]
RODDED	324'	L.F. on	[illegible]	From	[illegible]	To	The Vigne	DATE	[illegible]
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____
REPAIR	_____							DATE	_____
REPAIR	_____							DATE	_____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET DEPARTMENT

SANITARY SEWER MAINTENANCE REPORT

DATE: _____ 19___

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED	253'	L.F. on	Hunt	From	1017	To	Hunt/Railroad	DATE	9/12/03
RODDED	253'	L.F. on	Hunt	From	1017	To	Hunt/Railroad	DATE	11/18/03
RODDED	468'	L.F. on	Hunt	From	1017	To	Main St	DATE	2-23-04
RODDED	253'	L.F. on	Hunt	From	1017	To	Hunt/Railroad	DATE	4-5-04
RODDED	168'	L.F. on	Hunt	From	1017 Hunt	To	Edwards	DATE	4-5-04
RODDED	238'	L.F. on	Hunt	From	Edwards	To	940 Hunt	DATE	4-5-04
RODDED	158	L.F. on	Hunt	From	940 Hunt	To	June Ln	DATE	4-5-04
RODDED	464'	L.F. on	Hunt	From	June Ln	To	829 Hunt	DATE	4-6-04
RODDED	181'	L.F. on	Hunt	From	829 Hunt	To	Grave Ct	DATE	4-6-04
RODDED	263'	L.F. on	Hunt	From	Grave Ct	To	Monte Vista	DATE	4-6-04
RODDED	360'	L.F. on	Hunt	From 8"	Monte Vista	To	830 Hunt	DATE	4-6-04 8" Line
RODDED	260'	L.F. on	Hunt	From	Edwards	To	Church	DATE	4-12-04 6" Line
RODDED	603'	L.F. on	Hunt	From	906 Hunt	To	Edwards	DATE	4-12-04 8" Line
RODDED	485'	L.F. on	Hunt	From	830 Hunt	To	906 Hunt	DATE	4-12-04 8" Line
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____
REPAIR	_____							DATE	_____
REPAIR	_____							DATE	_____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET DEPARTMENT
SANITARY SEWER MAINTENANCE REPORT

Rodded LF	Street	from x Street	to x Street	Date	Routine	Emergency	Info
212'	Hunt	Railroad	Main	12/19/06	X		Hydro
253'	Hunt	1017 Hunt	Railroad	12/19/06	X		Hydro

S T R E E T D E P A R T M E N T

SANITARY SEWER
MAINTENANCE REPORT

DATE: _____ 19___

START WORK _____ END WORK _____ EMERGENCY CALL ___ Yes ___ No

RODDED	253'	L.F. on	Hunt	From	1017 Hunt	To	Hunt/R.R.	DATE	5/28/04
RODDED	468	L.F. on	Hunt	From	1017	To	Main	DATE	6/30/04
RODDED	212	L.F. on	Hunt	From	R.R.	To	Main	DATE	12/17/04
RODDED	253	L.F. on	Hunt	From	RR	To	1017	DATE	12/17/04
RODDED	212'	L.F. on	Hunt	From	R R	To	Main	DATE	2/22/04
RODDED	212'	L.F. on	Hunt	From	R.R.	To	Main	DATE	11/29/04
RODDED	212'	L.F. on	Hunt	From	RR Radio	To	Main	DATE	6/15/05
RODDED	253'	L.F. on	Hunt	From	1015 Hunt	To	RR & Hunt	DATE	6/15/06
RODDED	468'	L.F. on	Hunt	From	1017 Hunt	To	Main	DATE	9/28/06
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
RODDED	_____	L.F. on	_____	From	_____	To	_____	DATE	_____
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____

REPAIR _____ DATE _____

REPAIR _____ DATE _____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

S T R E E T D E P A R T M E N T

DATE: 4-20-04 19__

SANITARY SEWER MAINTENANCE REPORT

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes X NO

RODDED 389' L.F. on Kearney From Kearney & Tainter To Kearney & spring DATE 4-20-04

RODDED 135' L.F. on Kearny From 1621 tainter To end manhole DATE 12-11-06

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

RODDED _____ L.F. on _____ From _____ To _____ DATE _____

MANHOLES # _____ on _____ From _____ To _____ DATE _____

REPAIR _____ DATE _____

REPAIR _____ DATE _____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET DEPARTMENT

DATE: 1-17-2000 19___ **SANITARY SEWER MAINTENANCE REPORT**

START WORK _____ END WORK _____ EMERGENCY CALL X Yes ___ No

RODDED	239'	L.F. on	Library Ln	From	Manor	To Library DATE 1-17-00
RODDED	177'	L.F. on	"	From	"	To " DATE 1-24-00
RODDED	177'	L.F. on	"	From	"	To " DATE 12-1-00
RODDED	177'	L.F. on	"	From	"	To " DATE 12-29-00
RODDED	177'	L.F. on	"	From	"	To " DATE 1-3-01
RODDED	177'	L.F. on	"	From	"	To " DATE 10-12-01
RODDED	177'	L.F. on	"	From	"	To " DATE 2-28-03
RODDED	177'	L.F. on	"	From	"	To " DATE 3-25-03
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
RODDED	_____	L.F. on	_____	From	_____	To _____ DATE _____
MANHOLES #	_____	on	_____	From	_____	To _____ DATE _____
REPAIR	_____					DATE _____
REPAIR	_____					DATE _____

STOPPAGE-LOCATION Roots 45-50" use 6" cutter

Cause of stoppage, unusual conditions or added info.

Equipment	Hours	Labor	Hours

Street Foreman

STREET D ARTMENT
SANITARY SEWER MAINTENANCE REPORT

Rodded LF	Street	from x Street	to x Street	Date	Routine	Emergency	Info
135'	Railroad	Hunt	behind Kellers	12/19/06	X		Hydros

STREET D ARTMENT
SANITARY SEWER MAINTENANCE REPORT

Rodded LF	Street	from x Street	to x Street	Date	Routine	Emergency	Info
97'	Spring	Money Way	Main St	1/5/07		X	Sewer
97'	Spring	Money Way	Main st	1/31/07	X		Hydro
255'	Spring	Money Way	Oak	1/31/07	X		Hydro

S T R E E T D E P A R T M E N T

SANITARY SEWER MAINTENANCE REPORT

DATE: _____ 19___

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED	156'	L.F. on	Spring Mt. Rd.	From	1781 S. M.R.	To	1709 S. M. R.	DATE	2/9/95
RODDED	156'	L.F. on	"	From	"	To	"	DATE	1-30-01
RODDED	305'	L.F. on	Spring	From	Oak	To	Main	DATE	1-14-03
RODDED	400	L.F. on	Spring	From	Kearney	To	Oak	DATE	12-09 (KS
RODDED	357	L.F. on	Spring	From	Oak	To	Main	DATE	1-12-04
RODDED	156'	L.F. on	Spring Mt. rd.	From	1781 SMR	To	1709 SMR	DATE	Do not rod up hill 1-23-04
RODDED	357'	L.F. on	Spring	From	Oak	To	Main	DATE	2-20-04
RODDED	156'	L.F. on	Spring Mt. Rd.	From	1781 SMR	To	1709 SMR	DATE	2-7-04
RODDED	400'	L.F. on	Spring	From	Kearny	To	Oak St	DATE	4-20-04
RODDED	357'	L.F. on	Spring	From	Oak	To	Main	DATE	4-21-04
RODDED	100'	L.F. on	Spring	From	Money Way	To	Main	DATE	12/13/04
RODDED	255'	L.F. on	Spring	From	Money Way	To	OAk	DATE	12/13/04
RODDED	380'	L.F. on	Spring	From	Kearney	To	Oak	DATE	12/13/04
RODDED	156'	L.F. on	SPr.Mt.	From	1781 SprMt.	To	1709 SprMt	DATE	12/15/06
MANHOLES #	_____	on	_____	From	_____	To	_____	DATE	_____
REPAIR	_____							DATE	_____
REPAIR	_____							DATE	_____

STOPPAGE-LOCATION _____

Cause of stoppage, unusual conditions or added info.

_____

_____

Equipment	Hours	Labor	Hours

_____
Street Foreman

STREET DEPARTMENT

795
835
815

DATE: 6/ 2003 19__ SANITARY SEWER MAINTENANCE REPORT

START WORK _____ END WORK _____ EMERGENCY CALL ____ Yes ____ No

RODDED 452 L.F. on SIL.OR From Pope To End 8" DATE 6/25/03
RODDED 260' L.F. on Safeway From Parking Lot To Hunt DATE 4/5/04
RODDED 270' L.F. on Safeway From Parking Lot To Adams DATE 4/5/04
RODDED 270' L.F. on Safeway From Parking Lot To Adams DATE 4/21/04
RODDED 452 L.F. on Pope From Sil orchards To End DATE 5/19/04
RODDED 452' L.F. on Pope From Sil orchards To End 8" DATE 5/2/05
RODDED 452' L.F. on Pope From Sil orchards To End DATE 3/16/06
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
RODDED _____ L.F. on _____ From _____ To _____ DATE _____
MANHOLES # _____ on _____ From _____ To _____ DATE _____
REPAIR _____ DATE _____
REPAIR _____ DATE _____

STOPPAGE-LOCATION _____
Cause of stoppage, unusual conditions or added info.

Equipment	Hours	Labor	Hours

Street Foreman

STREET DEPARTMENT

DATE: March 2003 19___ SANITARY SEWER MAINTENANCE REPORT

START WORK _____ END WORK _____ EMERGENCY CALL ___ Yes ___ No

RODDED 449' L.F. on Vineyard From 1797 To Hillview DATE 3/24/03
RODDED 277' L.F. on Vineyard From Doris Ct To 1797 DATE "
RODDED 449' L.F. on Vineyard From 1797 To Hillview DATE 5/9/03
RODDED 449 L.F. on Vineyard From Hillview To 1797 DATE 8/V03 Roots
RODDED 449 L.F. on Vineyard From 1797 To Hillview DATE 10/07
RODDED 277' L.F. on Vineyard From Doris Ct To 1797 DATE 10/27/03
RODDED 401' L.F. on Voorhees From Mitchel & Voorheesins To 1554 Voorhees DATE 10-27-03
RODDED 449' L.F. on Vineyard From Hillview To 1797 Vineyard DATE 9-20-04
RODDED 449' L.F. on Vineyard From 1797 Vineyard To Hillview DATE 5-13-04
RODDED 449' L.F. on Vineyard From 1797 To Hillview DATE 5-19-04
RODDED 277 L.F. on Vineyard From 1797 To Doris DATE 12 6 04
RODDED 449 L.F. on Vineyard From 1797 To Hillview DATE 12 6 04
RODDED 449 L.F. on Vineyard From Hillview To [illegible] DATE 3-28-05
RODDED 449' L.F. on Vineyard From Hillview To 1797 Vineyard DATE 3-20-06
MANHOLES # _____ on _____ From _____ To _____ DATE _____
REPAIR _____ DATE _____
REPAIR _____ DATE _____
STOPPAGE-LOCATION _____

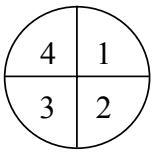
Cause of stoppage, unusual conditions or added info.

3" cutter only

Equipment	Hours	Labor	Hours

Street Foreman

Sanitary Sewer Work Sheet



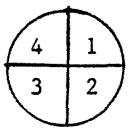
Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

Street		
Manhole Id. # From: To:		
Date		
Pipe size	in:	out:
Type of pipe	in:	out:
Manhole Type Condition		

Distance reading	Quadrant 1	2	3	4	REMARKS



Quadrant Nos.

143 under water
193

City of St. Helena

Sanitary Sewer Work Sheet

" Street MAIN
Manhole Id. #
from Pine &
To Adams
Date 1-4-07
pipe size 6 in 6 out
Type of pipe in out
Manhole
Type
Condition

Distance reading	quadrant 1	2	3	4	REMARKS
13.3				X	LATERAL
17.9	X				LATERAL
19.8	X				LATERAL
42.2				X	LATERAL
48.1				X	LATERAL
57.3					ROOTS Top of Pipe
65.5					ROOTS 3RD QUAD
74.0			X		LATERAL
86.1	X				LATERAL
131.0					ROOTS
135.0					
145.4	X				LATERAL
157.7				X	LATERAL
205.5					ROOTS
211.5					Roots
219.8				X	Lateral
221.9	X				Lateral
226.4					Chip on Top 1st Quad.
247.7			X		Lateral
250.0		X			Lateral
275.8			X		Lateral
278.1		X			Lateral
302.1					Roots 3RD/4th Quad
304.1			X		Lateral
310.1					Water top of Pipe In.
321.6					Lateral top of Pipe
324.0					under water

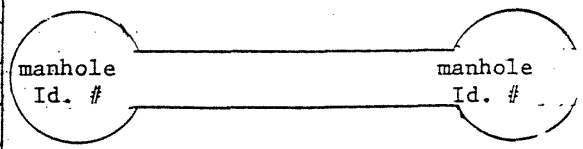
REMARKS & REPAIRS NEEDED

56' under water

Cleaned

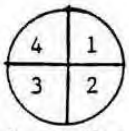
Cleaned

Direction of Measurement
From Center of Manhole



No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street Oak St.
Manhole Id. #
from 1445
To Adams
Date 6/23/04
pipe size in 6" out 6"
type of pipe in out
Manhole
Type Clay
Condition

istance reading	quadrant 1	2	3	4	REMARKS
27.7				X	LATERAL
43.2				X	LATERAL
61.8		X			LATERAL Active
76.0				X	LATERAL
42.0				X	LATERAL Active
43.8		X			LATERAL Active
64.7		X			LATERAL Active
78.5					HOLE IN TOP of PIPE
88.1				X	LATERAL Active
13.7				X	LATERAL
217.8		X			LATERAL
295					Manhole
					Adams to Tainter ON Oak St.
05.4				X	LATERAL
55.6				X	LATERAL
59.2				X	LATERAL
86.0		X			LATERAL
94.2				X	LATERAL
126.2		X			LATERAL Active
152.1				X	LATERAL
186.3					Roots / camera can't get past
					Tainter to Adams ON OAK St
10.0		X			Lateral
56.0		X			Lateral Wye
72.1		X			Lateral Active
3.8				X	Lateral
14.0					Offset Joint Camera won't go

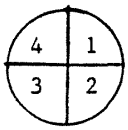
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

1445 manhole Id. # — OAK St. — manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

156

City of St. Helena

Sanitary Sewer Work Sheet

" Street Oak St.
Manhole Id. #
from Tainter St.
To Spring St.
Date
pipe size in 6" out 6"
Type of pipe in out
Manhole
Type
Condition

Distance Reading	quadrant 1	2	3	4	REMARKS
					Tainter to Spring on oak
11.3		X			Lateral for Tainter St
73.0			X		Lateral
77.1		X			Lateral
18.5				X	Lateral
30.4	X				Lateral ? Toilet Paper
52.7				X	Lateral
54.8	X				Lateral
200.7				X	Lateral
221.5	X				Lateral Active
230.9				X	Lateral Roots Heavy
233.4	X				Lateral
239.3					Pipe Broken ?
242.9					Pipe Broken
245.6					Pipe Broken
248.4					Pipe Broken
261.0					Pipe Broken
286.6					Roots
309.0		X			Lateral
322.1					Broken Pipe
330.5					Broken Pipe
332.6					Broken Pipe
350.8	X				Lateral
366.6					Grease Stopped Camera

REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

manhole Id. # — oak st — manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

405 OAK
635
70

City of St. Helena

Sanitary Sewer Work Sheet

634
459
144

" Street MADRONA AVE
Manhole Id. #
from KEARNEY
To OAK
Date 12-15-04
pipe size 6 in 6 out
type of pipe in CLAY out
Manhole
Type
Condition

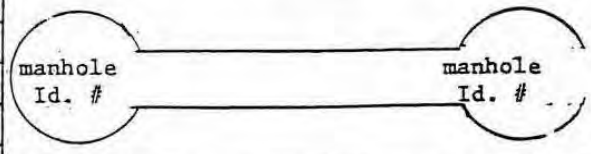
stance eading	quadrant 1	2	3	4	REMARKS	Reel
21				X		22.1
46.4				X	Lateral	46.5
65.2	X				Roots (small)	65.3
10	X				Lateral	110.0
22.5				X	Lateral	122.5
152.1	X				Lateral	152.3
88.2	X				Lateral	188.4
96.5				X	Lateral	196.5
270.1				X	Lateral	270.1
342.4				X	Lateral	342.4
399					MANHOLE OAK & MADRONA	
416.4				X	Lateral	416.4
440.9					Under water	
442.5					out of water (Roots??)	442.5
462.3	X	X	X	X	Roots	
4772					Under water (Grease)	477.1
480.3					out of water	480.5
488.4					Top of Pipe Clean	488.4
490.5					Green Under Water	490.7

REMARKS & REPAIRS NEEDED

Man Hole 193.5 Reel 193.1

MAN HOLE-

Direction of Measurement
From Center of Manhole



No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

Street MADRONA

Manhole Id. # SPRING ST STA 1

from

To

Date 12-15-04

pipe size 6 in 6 out

type of pipe in out

Manhole

Type

Condition

Distance Reading	quadrant 1	2	3	4	REMARKS
6'					underwater
10.3					out of water -
7.5				X	Lateral ??? 12.5'

REMARKS & REPAIRS NEEDED

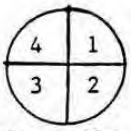
Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

Street: MADRONA

Manhole Id. # from: STOCKTON TO SPRINGS MT RD

To:

Date: 12-15-04

pipe size in: out:

type of pipe in: out:

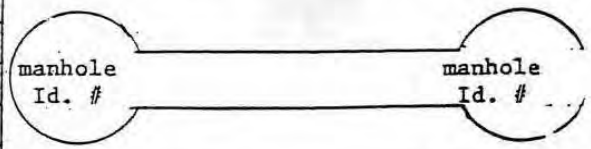
Manhole Type:

Condition:

stance eading	quadrant 1	2	3	4	REMARKS
1.3				X	Lateral.
2.6				X	Lateral 12.2
16.6				X	Lateral 20.8
2.7					Under water
21.0					Couldn't get PASS it Knee with.

REMARKS & REPAIRS NEEDED

Direction of Measurement From Center of Manhole



No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

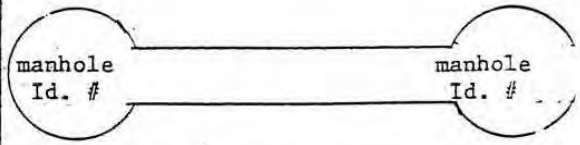
" Street

Manhole Id. # from West America Bank
To LA Prima/Safeway P.L.
Date 4/20/04
pipe size in out
Type of pipe in out
Manhole West America Bank
Type Adams 5
Condition

Distance reading	quadrant 1	2	3	4	REMARKS
28.2		✓			West America Let
57.5			✓		LATERAL PARKING LOT?
216.0					Possible Manhole ?

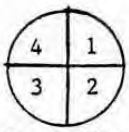
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole



No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

Street TAINTER MC BLOCK KEPLER & SNC

Manhole Id. #
from
To

Date

pipe size in out

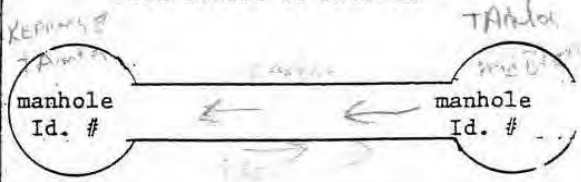
Type of pipe in out

Manhole
Type
Condition

Distance Reading	quadrant 1	2	3	4	REMARKS
	/				MANHOLE PICKED UP PIPE
15	X				LATERAL X
23				X	LATERAL X
63					BROKEN PIPE TOP
97				X	BROKEN PIPE ON TOP ROCKS
109				X	CAPPED X
119	X				LATERAL X
211	X	TOP	X		CLEAN OUT TOP PIPE X
147				X	LATERAL X

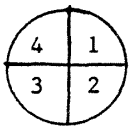
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole



No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street

Manhole Id. #
from
To

Date

pipe size in out

type of pipe in out

Manhole
Type
Condition

Mitchell

istance reading	quadrant 1	2	3	4	REMARKS
6.6"			X		
29.4		X			
83.0			X		
143			X		The House That was Flooded
190			X		
					313

REMARKS & REPAIRS NEEDED

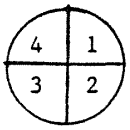
Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street Chestnut Oak

Manhole Id. #
from
To

Date

pipe size in out

Type of pipe in out

Manhole
Type
Condition

istance reading	quadrant 1	2	3	4	REMARKS
51.2				X	Lac
172	X				

REMARKS & REPAIRS NEEDED

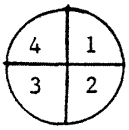
Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

From MH to Clean out

" Street

Manhole Id. #
from
To

Date
pipe size 6 in out
Type of pipe in out
Manhole Conc
Type
Condition

Hutson 1145
To Clean out

Distance reading	quadrant 1	2	3	4	REMARKS
3'	X			X	Lad
63.1	X			X	Lad
165					
187.6	X				
120.5				X	
180	X			X	
239	X			X	
276					Roots
298	X			X	Lad & Roots
323	X			X	Lad & Roots

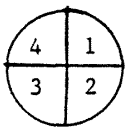
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

manhole Id. # — manhole Id. #

No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street PINOT WAY
Manhole Id. # from 2543 PINOT WAY
To
Date 9/29/98
pipe size in out
Type of pipe in out
Manhole
Type
Condition

istance reading	quadrant 1	2	3	4	REMARKS
					CNTR MANHOLE 2543 PINOT WY
65.4	X				LATERAL S
30.3					CNTR MANHOLE 2529
360					MAN HOLE 2529
17.1				X	LATERAL S

REMARKS & REPAIRS NEEDED

CAMARA TURNED OVER WITH TO LATER DATE—
GREASE IN LINE

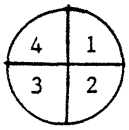
Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street Charter Oak
Manhole Id. # from 953 To Alley
Date 11-16-98
pipe size 8 in 8 out
Type of pipe PVC in PVC out Plastic
Manhole Type
Condition

Distance reading	quadrant 1	2	3	4	REMARKS
000					manhole 953 Charter Oak
25.3	X				Lateral
74.1	X				Lateral
113.5	X			X	Lateral top of Pipe
230.4	X				Lateral
123.1	X				
2028				X	
67				X	Latcral
251.1	X				Latcral

REMARKS & REPAIRS NEEDED

Started to T.V. to much grease
Brought out Rodder to clean
then T.V.

Direction of Measurement
From Center of Manhole

manhole Id. # — manhole Id. #

No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street CHARTER OAK
Manhole Id. #
from TRA VIGNE
To CHARTER HOUSE
Date 11-16-98
pipe size in 8 out 8
type of pipe in PVC out PVC
Manhole —
Type
Condition

.stance reading	quadrant 1	2	3	4	REMARKS
0.0					MANHOLE
35.0				X	LATERAL (N) (TRA VIGNE)
78.0	X				LATERAL (S)
116.3	X				LATERAL (S)

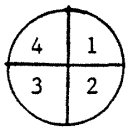
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

manhole Id. # — manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

Woodbridge

City of St. Helena

Sanitary Sewer Work Sheet

" Street

Manhole Id. #
from
To

Date

pipe size in out

Type of pipe in out

Manhole
Type
Condition

REMARKS & REPAIRS NEEDED

Distance reading	quadrant 1	2	3	4	REMARKS
00					MANhole
88	#			X	LAteral
92	X				LAteral
100'					under WATer
105					out of WATer
145'					under WATer
~~145~~ 18					out of WATer
200'					MANhole

Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of **Lots**



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street BROWN
Manhole Id. #
from
To
Date 1-3-00
pipe size 6 in 6 out
Type of pipe in out
Manhole
Type
Condition

Distance Reading	quadrant 1	2	3	4	REMARKS
2[illegible]					MAN HOLE
17.8	X				(MAIN) LATERAL FROM SPRING
20				X	LATERAL 4
30				X	LATERAL
32	X				6" LATERAL
46				X	LATERAL
52'					CHIP in TOP of PIPE
58'	X				LATERAL
70.5				X	LATERAL
76					ROOTS TOP
76.6				X	LATERAL ROOTS
8[illegible]					ROOTS
91.7					ROOTS
94.3	X				LATERAL
96.6				X	LATERAL
10	X				LATERAL
116	X				LATERAL
122				X	LATERAL
130	X				LATERAL
134	X				LATERAL
147				X	LATERAL
157					ROOTS
160					ROOTS
160.4	X				LATERAL
174				X	LATERAL
181					CLEAN OUT TOP
186	X			X	LATERAL
197	X				LATERAL
211	X			/	LATERAL
223	X				LATERAL
226					ROOTS
231					ROOTS
232					ROOTS
237	X				ROOT LATERAL

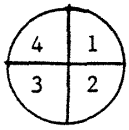
REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

manhole Id. # — manhole Id. #

No.# of Laterals;

No.# of Lots



Quadrant Nos.

City of St. Helena

Sanitary Sewer Work Sheet

" Street

Manhole Id. #
from
To

Date

pipe size in out

Type of pipe in out

Manhole
Type
Condition

Distance reading	quadrant 1	2	3	4	REMARKS
251				X	Lateral
265	X				Lateral
277				X	Lateral
289	X				Lateral
303				X	Lateral
317	X				Lateral
329				X	Lateral
343					"Grease"

REMARKS & REPAIRS NEEDED

Direction of Measurement
From Center of Manhole

manhole Id. #

manhole Id. #

No.# of Laterals;

No.# of Lots

Outreach to Plumbers & Sewer Contractors

Plumbers & Sewer Contractors: Your Actions Can Prevent Sanitary Sewer Overflows!

What are Sanitary Sewer Overflows or SSOs?

SSOs discharge untreated or partially treated human and industrial waste, debris and disease-causing organisms from the sanitary sewer onto the ground near and into homes and potentially into creeks, rivers, lakes or streams.

What are the impacts of SSOs?

SSOs may result in property damage, environmental damage and/or potential liability to you or your company. Allowing sewage to discharge to a gutter, storm drain or waterway may subject you to penalties and/or out-of-pocket costs to reimburse cities or public agencies for clean-up efforts and regulatory penalties.

How can you prevent SSOs?

and avoid associated penalties & fines

When clearing plugged sewer laterals:

- ☑ Whenever possible, remove root balls, grease blockages and any other debris; don't push debris from the lateral to the sewer main.
- ☑ If you can't prevent a root ball or other debris from entering the sewer main when working in our service area, **please call us** at (707) 968-2658, so we can work with you (free of charge) to remove the root ball from the sewer main to prevent blockages further downstream.
- ☑ Use plenty of water to flush lines.
- ☑ Don't open manholes. Hazardous sewer gases from manholes are odorless, undetectable and can be deadly. Call us to open manholes for you and please note that discharge into a publicly-owned manhole requires a permit. Contact us at (707) 968-2658, for an application.

When constructing sewer laterals:

- ☑ Check your work area. Gravel, backfill material and test plugs can become lodged in the sewer line and cause blockages. Make sure no debris is left in the sewer line before you backfill.
- ☑ Avoid offset joints – offset joints make sewer lines vulnerable to root intrusion & grease accumulation, cause debris hang-ups and make lines harder to clean. Properly bed your joints and don't hammer tap.
- ☑ In the City of St. Helena service area, contact us for the appropriate construction specs at (707) 968-2658.

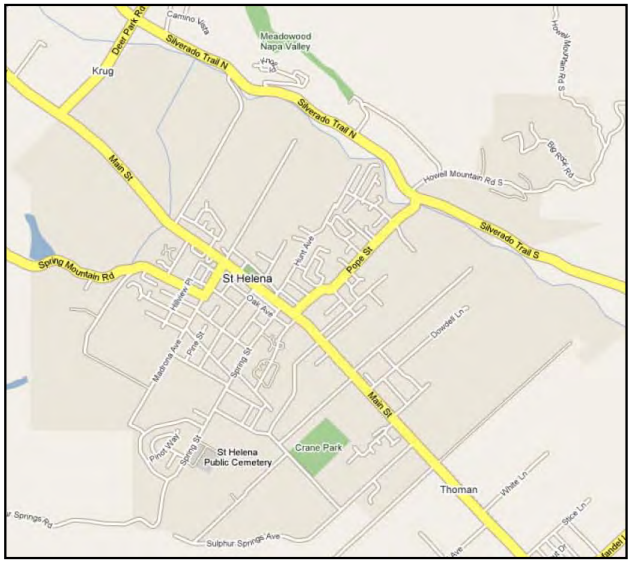


Who Do I Call to Avoid an SSO?

Help us help you…

If you require our free assistance to help clear root balls, grease blockages and other debris from a main sewer line to prevent an SSO or to open a manhole in our service area, please call us at:

(707) 968-2658



Bay Area Clean Water Agencies
A Joint Powers Public Agency

BAPPG

Training Attendance Form

City of St. Helena
Collection System Staff
Training Sign-In

DATE: _____

TITLE OF TRAINING SESSION: _____

NAME	SIGNATURE

INSTRUCTOR: _____

INSTRUCTOR SIGNATURE: _____

5. Design and Construction Standards

5 Design and Performance Provisions

5.1 Standards for Installation, Rehabilitation and Repair

Section 6 (Sanitary Sewer System) of the City of St. Helena Water and Sewer Standards (Resolution No. 93-58, Adopted June 22, 1993) includes design criteria as outlined below. These Standards are periodically reviewed, and updated as necessary. These standards are available online at www.cityofsthelena.org/publicworks/webform/forms-and-documents .

6-1.01: Materials
6-1.02: Acrylonitrile-Butadiene-Styrene (ABS) Pipe
6-1.03: Polyvinyl Chloride (PVC) Pipe
6-1.04: Ductile Iron Pipe (DIP)
6-1.05: Excavation and Backfill
6-1.06: Existing Manholes
6-1.07: Pipe Laying
6-1.08: Sewer Structures
6-1.09: Testing of Sewers
6-1.10: Trench Resurfacing
6-1.11: Mandrel Test

6-2.01: Permits
6-2.02: Pipe Size
6-2.03: Grades and Alignment
6-2.04: Backflow Device
6-2.05: Independent Systems
6-2.06: Cleanouts
6-2.07: Fittings
6-2.08: Proximity to Wells
6-2.09: Connecting to Existing Buildings
6-2.10: Connection to Existing Sewers
6-2.11: Material
6-2.12: Pipe Cover and Clearance

In addition to written specifications for the design and construction of the sanitary sewer system, standard drawings are included for the Sewer Division, as listed below:

201 - Standard 48" diameter precast concrete manhole sanitary sewer
202 - Standard 60" diameter precast concrete manhole sanitary sewer
203 - Inside drop in sanitary sewer manhole
204 - Outside drop in sanitary sewer manhole
205 - Temporary mainline cleanout
206 - Temporary mainline cleanout
207 - Abandoned pipe plug detail
208 - Abandoned manhole detail
209 - Standard precast concrete manhole reducer slab sanitary sewer
210 - Standard manhole frame and cover
211 - Sewer service lateral
212 - Sewer service lateral
213 - Pipe-structure crossing detail
214 - Plastic sewer pope deflection mandrel
215 - Precast grease interceptor
216 - Sand and grease interceptor
217 - Sampling manhole exterior use
218 - Sampling box building interior
219 - Cleanout detail at building
220 - Typical service sewer connection details
221 - Backwater check valve installation
222 - Service sewer trench detail
223 - Sewer separation requirements

5.2 Standards for Inspection and Testing of New and Rehabilitated Facilities

Inspection and testing of new facilities is important to ensure that the City's established standards are implemented in the field. Using the legal authority described earlier in the SSMP, completed construction is not accepted by the City until inspection and testing have been completed. This approach helps ensure proper operation and maximum life expectancy. The City has added to their Sanitary Sewer System Standards a requirement for a CCTV inspection prior to accepting a lateral or issuing a Certificate of Occupancy for a new connection.

The City's process for testing Public Sewer Mains and Private Laterals is as follows:

1. Video inspection is required of all construction to ensure proper construction and to confirm connections and fit is as required.
2. Test by other means is also required using one of the following methods:
   a. Pressure Test: Pressure testing is required under 4 pounds per square inch (PSI) for a minimum of 4 minutes with a maximum allowable pressure drop of 0.5 PSI. If the pressure drops more than this amount, then re-pressurize to 3.5 PSI and hold for additional 4 minutes. Pressure must not drop below 3 PSI during this retest.
   b. Hydrostatic Test: All manholes and isolated laterals shall be tested by plugging at the main connection(s) and then filling structure or lateral with water. The water shall not exceed the allowable loss (for a four hour period), as determined by the City Engineer.

Inspection and testing of new wastewater collection facilities may be conducted by Wastewater Collection staff or by the contractor while an inspector representing the City makes sure the installation and testing meets the City's standards. Inspections are performed during and at the completion of construction.

6. Overflow Emergency Response Plan

6 Overflow Emergency Response Plan

A copy of the City's Overflow Emergency Response Plan (ERP) can be found as an attachment to this section and was developed in 2014. The ERP protocols are summarized below. The ERP is to be used in conjunction with the Sanitary Sewer Overflow & Backup Response Plan, a field guide developed in 2008 (also attached). In 2023, the City plans to update the ERP and the field guide, to address new applicable regulatory requirements expected from the State Water Board's adoption of the revised WDR.

6.1 Notification

This section includes information on how the City is to be notified of an SSO through a complaint or a report. Additionally, this section includes the chain of communication leading up to the response to the overflow.

The City has an emergency on-call service 24-hours a day, every day of the year with a goal to respond to all calls within 30 minutes. The City will clear all plugged sewer laterals from the property line and all City main lines. If the problem is in the homeowner's section of the lateral, the City crew will inform them of the situation. The homeowner is responsible for any issues with the upper lateral and house plumbing. As listed on the City's website, anyone wishing to report an SSO should contact the Department of Public Works:

Address:	1480 Main Street, St. Helena, CA 94574
Hours:	8:00 a.m. - 5:00 p.m.
Phone:	707-968-2658
After Hours Phone:	707-967-2850 or 911
Fax:	707-967-2806
Email:	publicworks@cityofsthelena.org

Immediately upon receipt of a notice of a SSO, the following actions take place:

- Public Works Director (or nights and weekends sewer standby person) is notified of SSO.
- Public Works Director notifies Collection System Operation Team. (Nights and weekends standby person responds and identifies need for additional personnel).
- Collection System Operation Team mobilizes to location of SSO to assess overflow.

6.2 Response

Once the Collection System Operation Team is notified of a SSO, the chain of events is as follows:

It is the responsibility of the first St. Helena wastewater (STHWW) employee arriving at the scene of the sewer overflow location to protect the health and safety of the public by immediately beginning the necessary steps to mitigate the impact of the overflow.

1. Initial Assessment and Response. General, quick steps to mitigate the situation can be taken once an employee becomes aware of the sewer overflow:
   - Determine the cause of the overflow, e.g., line blockage, line breakage, pump mechanical or electrical failure, etc.
   - If possible, take immediate steps to stop the overflow by rectifying the line blockage, isolating a pipeline breakage, restoring power, putting another pump into service, etc.
   - Identify what, if any, resources can assist with the mitigating the cause of the overflow, including additional personnel, materials, supplies and/or equipment.

2. Spill Containment and Control. The primary objective of the responders to a sewer overflow incident is to protect the public's health. Therefore, if it is at all possible that the public may come into contact with any sewage material from an overflow event, the responders should remove that possibility by isolating the surrounding area. The perimeter of the sewer overflow site can be controlled with cones, barricades, vehicles or some other barrier that restricts access.

   After the public has been isolated from the spill area, containment and clean-up can proceed. The spill should be contained within the smallest possible area, and every effort should be made to prevent the discharge of sewage into any receiving waters. The following are containment suggestions:
   - For spills that occur within the Wastewater Treatment facility, every effort should be made to keep the spill from leaving the facility's property.
   - Determine the immediate destination of the overflow, e.g. storm drain, street curb gutter, body of water, culvert, landscaped area, etc.
   - Identify and request the necessary equipment to contain or isolate the overflow if not readily available. Take immediate steps to contain the overflow, e.g. block or bag the storm drain inlet, recover the overflow by pumping, construct a containment pond, divert into a downstream manhole, etc.
   - In the event of a prolonged line blockage, breakage or collapse, a determination must be made to set up a portable by-pass pumping operation around the problem area. If this becomes the case, personnel will be required to continuously monitor the by-pass pumping operation until it can be terminated.

3. Spill Cleanup. SSO sites are to be thoroughly cleaned as soon as possible after the overflow incident is mitigated. No residue will be left for future rains to carry away or for public contact to occur. The following steps should be taken to ensure that the overflow sites are returned to their former conditions:
   - Where possible, the area is to be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris are to be flushed, swept, raked or picked up by hand and properly disposed of.
   - Where appropriate, the overflow site is to be disinfected with HTH (hydrated calcium hypochlorite) and water or liquid bleach (aqueous sodium hypochlorite). Never flush any disinfectant into a storm drain or body of water.
   - If sewage has ponded, the pond should be pumped dry and the residue and site cleanup managed as previously mentioned.

4. Spill Classification and Quantification. There are three general classifications of SSOs:

   - Category 1 SSO – Spills of any volume that reach surface water without being fully recovered.
   - Category 2 SSO – Spills over 1,000 gallons or greater that do not reach surface water or that are completely recovered from a municipal separate storm sewer system and disposed of properly.
   - Category 3 SSO– Spills less than 1,000 gallons that do not reach surface water.

   No matter what the SSO classification or its volume, the need for containment, control and recovery procedures by STHWW employees and our responsibility to understand and comply with the reporting requirements remains.

   Spill quantification requires careful documentation and close observation of discharges. Staff should make every effort to maintain a careful chronology of the events during a spill and make every attempt to conduct linear measurements of the discharge streams and flow velocities in order to effectively quantify the spill volumes. If possible, photo documentation of the spill event should also become a routine procedure in the spill documentation process. Official estimates of the spill volume will be the responsibility of the Director of Public Works. A few other types of spills, and the compliance requirements, are outlined in the next couple of sections.

5. Spill Documentation. Aside from the "SSO Event Report" Form, STHWW employees may also (at the discretion of the Director of Public Works) compile, document and report an "Official Spill Record" which can assist in providing a record of the events of the incident. The Spill Events Record may include:
   - Event times (failure, discharge start and stop)
   - Personnel on site
   - Arrival and departure time of all personnel
   - Equipment on site
   - Milestone events (if any)
   - Photo and video documentation
   - Spill volume estimates and the method used to determine the estimates
   - Arrival time of outside resources (and list of the resources)
   - Regulatory agency representatives on site (obtain their business cards)
   - Spill recovery volume estimates

6. Posting. Posting contaminated water signs is required downstream of the location of an SSO. Posting should be implemented under the following guidelines:
   - Wetlands or creek beds shall be posted at 50 foot intervals for high use areas and 600 foot intervals for low use areas. Both sides of creek beds must be posted.

7. Spill Sampling and Monitoring. If more than 50,000 gallons reached waterways, sampling of the body of water is mandatory. Sampling procedures are included in the

Water Quality Monitoring Program (attached to the ERP). At the direction of the Director of Public Works, sampling of lower volume spills may also be performed. Conducting sampling at the appropriate locations allows staff to establish and monitor the levels of contamination as well as to establish or compare with the natural background levels of bacteria in the receiving waters.

All final sampling and monitoring results will be uploaded into CIWQS at http://ciwqs.waterboards.ca.gov.

6.3 Reporting

The Public Works Director or his/her designee is responsible for completing, or overseeing the completion of the SSO Event Form (attached) and CIWQS online reporting (http://ciwqs.waterboards.ca.gov). In addition, the Office of Emergency Services will be notified of SSOs where 1,000 gallons or more reach waterways or are likely to reach waterways when not fully recovered from a drainage channel or a storm drain system.

Depending on the SSO classification, CIWQS reporting procedures are as follows:

- Category 1 (all spills that reach waterways without being fully recovered):
  - Submit draft report within 3 days of becoming aware of SSO
  - Finalize report and certify within 15 days of the end of the SSO
  - If more than 50,000 gallons reached the waterways:
    - Submit all water quality results to CIWQS as soon as they become available
    - Develop and submit an SSO Technical Report within 45 days of the end of the SSO

- Category 2 (spills of 1,000 gallons or more that do not reach waterways or that are fully recovered):
  - Submit draft report within 3 days of becoming aware of SSO
  - Finalize report and certify within 15 days of the end of the SSO

- Category 3 (spills less than 1,000 gallons that do not reach waterways or that are fully recovered):
  - Submit certified report within 30 calendar days of the end of month in which the SSO occurred.

6.4 Impact Mitigation

When an SSO results in release of sewage into the street, the following procedures are used to remove the wastewater and clean the affected area as soon as possible after the overflow incident is mitigated. No residue will be left for future rains to carry away or for public contact to occur. The following steps should be taken to ensure that the overflow sites are returned to their former conditions:

- Where possible, the area is to be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris are to be flushed, swept, raked or picked up by hand and properly disposed of.
- Where appropriate, the overflow site is to be disinfected with HTH (hydrated calcium hypochlorite) and water or liquid bleach (aqueous sodium hypochlorite). Never flush any disinfectant into a storm drain or body of water.
- If sewage has ponded, the pond should be pumped dry and the residue and site cleanup managed as previously mentioned

When an SSO results in release of sewage into a surface water, efforts are made to remove the wastewater and minimize negative impact on the affected area using pumps and manually collecting solids. Posting "contaminated water" signs is required downstream of the location of an SSO. Posting should be implemented under the following guidelines:

- Wetlands or creek beds shall be posted at 50 foot intervals for high use areas and 600 foot intervals for low use areas. Both sides of creek beds must be posted. If 50,000 or more gallons reached waterways, sampling of the body of water is mandatory. Sampling procedures are included in the Water Quality Monitoring Program (attached to the ERP). At the direction of the Director of Public Works, sampling of lower volume spills may also be performed. Conducting sampling at the appropriate locations allows staff to establish and monitor the levels of contamination as well as to establish or compare with the natural background levels of bacteria in the receiving waters.

6. Overflow Emergency Response Plan

Attachments

Overflow Emergency Response Plan

CITY OF ST. HELENA WASTEWATER ENTERPRISE

Overflow Emergency Response Plan

Department of Public Works
1480 Main St
SAINT HELENA CA 94574
Phone 707-968-2658 • Fax 707-967-2806

Revised April 2014

1.0 Purpose

The City of St. Helena Wastewater Enterprise (STHWW) has developed this Overflow Emergency Response Plan (ERP) in order to fulfill requirements in its *National Pollutant Discharge Elimination System* (NPDES) and in the *Sanitary Sewer System Waste Discharge Requirements* (WDR) and the associated *Monitoring Reporting Program* (MRP). The procedures described in the ERP ensure that the protection of the environment and of the public's health and safety remains a concern with a high priority.

This document provides the necessary guidelines for the STHWW staff when they must respond to a sanitary sewer overflow event (spill or SSO) in the STHWW service area. It contains the following elements:

- **General information**
- **Basic spill definitions**
- **The spill response organizational matrix**
- **Guidance for spill containment and/or control**
- **Spill monitoring**
- **Proper notification protocols and forms**
- **Training**
- **Phone Directory**
- **Attachments:**
    - **SSO Event Report Form (3 pages)**
    - **SSO Water Quality Monitoring Plan (27 pages including appendices)**

2.0 General Information

2.1 **Background and Regulatory Requirements**: STHWW operates its wastewater collection, treatment and reclamation facilities under California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) Order No. R2-2010-0105 and Order 87-090. In addition, the STHWW is covered under Regional or Statewide General Permits issued by the Regional Water Board and the State Water Resources Control Board (State Water Board). With Regional Water Board Resolution R2-2003-0095 a collaborative effort between the Regional Water Board and the Bay Area Clean Water Agencies (BACWA) was initiated to develop and implement regional sewer system management planning assistance for individual wastewater system operators. With Resolution 2004-0080, the State Water Board required the development of a Sanitary Sewer Overflow Reduction Program. This ERP, initially known as a Sewer Overflow Response Program or SORP, was first developed to comply with that program. Later on, the State Water Board issued the WDR (Order 2006-0003-DWQ) and associated MRP. The WDR requires development of a Sewer System Management Plan (SSMP), with the ERP as one element of the SSMP. The State Water Board revised the MRP several times since first issuing it; the latest MRP amendment was issued in July 2013 through WQ 2013-0058-EXEC. The current version of the ERP (April 2014) was revised to comply with the 2013 MRP amendment.

2.2 **Overflow Emergency Response Plan**: The WDR requires development of an ERP to establish procedures for responding to spills to protect public health and the environment. Provision D.13(vi) of the WDR requires that each ERP include, at a minimum, the following elements:

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure an appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with the MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

2.3 **Civil Monetary Remedies and Penalties**: The California Water Code provides for fines for violations of the NPDES and Order 87-090 of up to $25,000 per day for each day in which a violation occurs. Additional fines for spills which were not, or cannot be cleaned up, may also be imposed. These additional fines may be up to $25 per gallon for each gallon in excess of 1,000 gallons discharged to a receiving water. Intentional negligence or repeated violations may be subject to higher penalties. Significant fines may also be imposed for failing or refusing to furnish technical or monitoring reports or for falsifying information in these reports.

3.0 Definitions

3.1 **Sanitary sewer system**: The wastewater collection system including sewers, pipes, pumps or other conveyances that convey wastewater (e.g. domestic, commercial, and industrial sewage) to the wastewater treatment plant.

3.2 **Sewer overflows**: Each instance of a surface discharge from a sanitary sewer system at any point upstream of the sewage treatment plant. Sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease and other pollutants. Sewer overflows can cause a temporary exceedance of applicable water quality objectives, pose a threat to the public heath, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the impacted areas. This expression is interchangeable with the terms "spill" or "sewage spill".

3.3 **Surface waters**: Surface waters include (1) the Napa River, (2) Sulphur Creek, (3) York Creek, (4) ephemeral streams, (5) lagoons, (6) dry creeks, (7) wetlands, (8) lakes, (9) natural ponds, (10) man-made canals and (11) storm drains.

3.4 **Reportable event**: Sanitary sewer overflows (SSOs) of any volume resulting from the STHWW system's failure or flow condition are reportable – those that are 1,000 gallons or more that reach surface waters, or are likely to reach surface waters, must be reported within 2 hours to the California Governor's Office of Emergency Services (OES). All SSOs must be electronically reported to the California Integrated Water Quality System (CIWQS); there are different timeframes for CIWQS reporting depending on the SSO's severity (see discussion on SSO categories in Section 5.4). Note that overflows or backups into buildings caused by blockages or other problems in private facilities are not SSOs.

3.5 **Initial receiving waters**: The surface water body that is first impacted by the spill.

3.6 **Secondary receiving waters**: The final surface water body that is impacted by the spill.

3.7 **Informal enforcement**: The types of actions taken by the Regional Water Board that may be characterized as "less serious" in nature. Actions may include a (1) Notice of Violation, or (2) Request for Information.

3.8 **Formal enforcement**: The types of actions taken by the Water Board that may be characterized as "serious" in nature. Actions may include (1) Cleanup and Abatement Orders, (2) Cease and Desist Orders, (3) Referral to the Attorney General or District Attorney, (4) Administrative Civil Liabilities.

4.0 Spill Response Organization

The STHWW Spill Response Organization provides a clear organizational structure designed to facilitate an understanding of the responsibilities of each staff member in the agency with regards to spill events.

4.1 **Director of Public Works / City Engineer** – The primary role of the Director of Public Works is to take responsibility for effectively coordinating the overall response to the sewer overflow event once it has occurred. His/her responsibilities include:

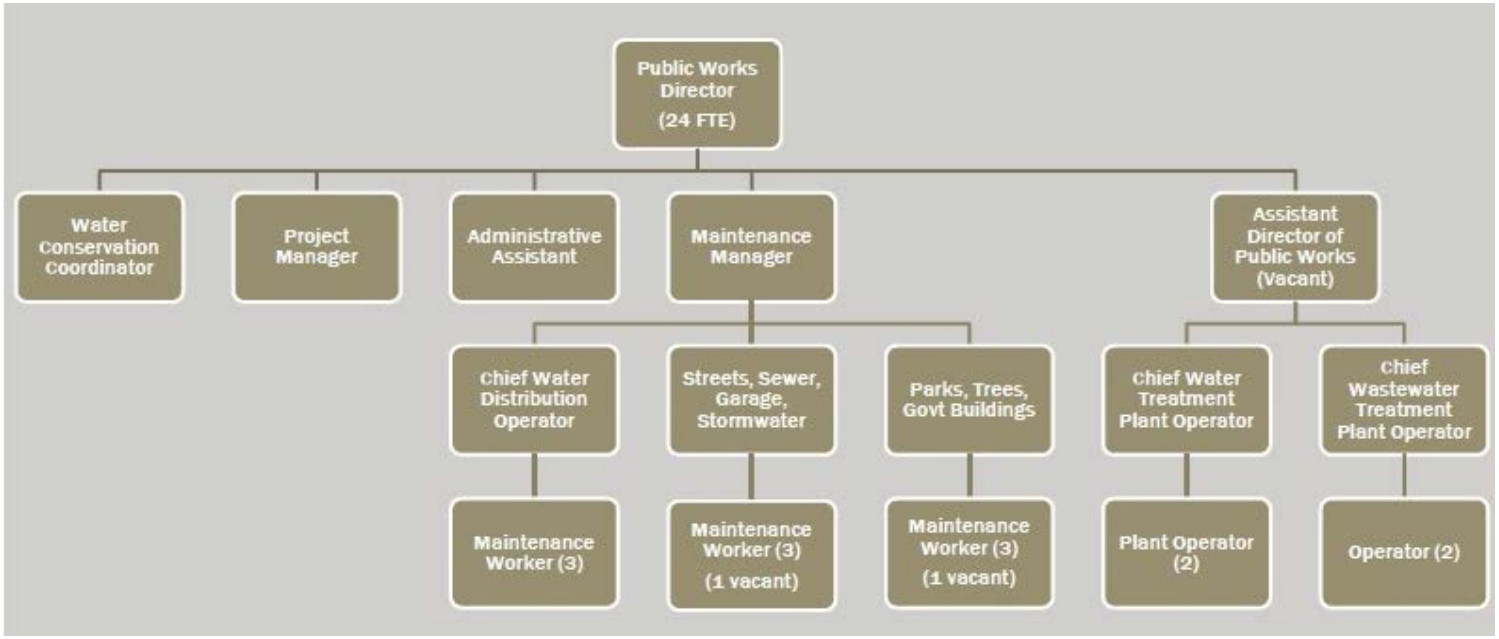
- Assume primary management and coordination of all SSO response actions
- Request assistance or resources from other agencies if necessary
- Assess the SSO situation and establish action priorities
- Perform an initial assessment of the extent of the onsite and off-site impacts (if any)
- Direct immediate spill control and containment measures
- Advise the City Manager as soon as possible
- Delegate staff to begin the spill record documentation and spill notification protocols.
- Ensure that all oral and written reports are completed within the time allotted requirements
- Oversee contractor work (if needed) and cleanup activities
- Reviews the preliminary and final spill reports to CIWQS, for accuracy.
- Ensures that the details of the spill event are accurately entered into the STHWW Spill Overflow Report Log
- Documents, by photo, all spill response and abatement activities (as necessary)
- Provides media and public information whenever the City Manager is unavailable
- Updates the Overflow Emergency Response Plan and provides staff training (as necessary)

4.2 **Sewer Supervisor (or first responder)** – The duties of the Sewer Supervisor consist of providing coordination, under the direction of the Director of Public Works, to mitigate the sewer overflow event, by directing resources and staff to contain, control and clean up the spill. His/her responsibilities include:

- Mobilize staff and equipment for spill abatement activities
- Delegate assignments to staff members in order to achieve spill containment and control
- Turn on/off all necessary equipment or utilities as needed
- Dike and contain spill areas as directed
- Assist in the evacuation of personnel if necessary
- Set up emergency power sources if needed
- May conduct the initial notification to OES and the initial reports to CIWQS
- Maintain security control at the spill site

4.3 **Maintenance Workers** – The duties of this position are to assist the Sewer Supervisor in whatever manner is necessary to secure equipment, coordinate the repair and/or replacement of equipment, coordinate the efforts of the maintenance staff, procure supplies and equipment if necessary, etc.

SPILL RESPONSE ORGANIZATION



5.0 Overflow Response Procedures

It is the responsibility of the first STHWW employee arriving at the scene of the sewer overflow location to protect the health and safety of the public by **immediately** beginning the necessary steps to mitigate the impact of the overflow.

5.1 **Initial Assessment and Response** – General, quick steps to mitigate the situation can be taken once an employee becomes aware of the sewer overflow:

- Determine the cause of the overflow, e.g., line blockage, line breakage, pump mechanical or electrical failure, etc.
- If possible, take immediate steps to stop the overflow by rectifying the line blockage, isolating a pipe line breakage, restoring power, putting another pump into service, etc.
- Identify what, if any, resources can assist with the mitigating the cause of the overflow, including additional personnel, materials, supplies and/or equipment.

5.2 **Spill Containment and Control**

The primary objective of the responders to a sewer overflow incident is to protect the public's health. Therefore, if it is at all possible that the public may come into contact with any sewage material from an overflow event, the responders should remove that possibility by isolating the surrounding area. The perimeter of the sewer overflow site can be controlled with cones, barricades, vehicles or some other barrier that restricts access.

After the public has been isolated from the spill area, containment and clean-up can proceed. The spill should be contained within the smallest possible area, and every effort should be made to prevent the discharge of sewage into any receiving waters. The following are containment suggestions:

- For spills that occur within the Wastewater Treatment facility, every effort should be made to keep the spill from leaving the facility's property.
- Determine the immediate destination of the overflow, e.g. storm drain, street curb gutter, body of water, culvert, landscaped area, etc.
- Identify and request the necessary equipment to contain or isolate the overflow if not readily available. Take immediate steps to contain the overflow, e.g. block or bag the storm drain inlet, recover the overflow by pumping, construct a containment pond, divert into a downstream manhole, etc.
- In the event of a prolonged line blockage, breakage or collapse, a determination must be made to set up a portable by-pass pumping operation around the problem area. If this becomes the case, personnel will be required to continuously monitor the by-pass pumping operation until it can be terminated.

5.3 **Spill Cleanup**

SSO sites are to be thoroughly cleaned as soon as possible after the overflow incident is mitigated. No residue will be left for future rains to carry away or for public contact to occur. The following steps should be taken to ensure that the overflow sites are returned to their former conditions:

- Where possible, the area is to be thoroughly flushed and cleaned of any sewage or wash- down water. Solids and debris are to be flushed, swept, raked or picked up by hand and properly disposed of.

- Where appropriate, the overflow site is to be disinfected with HTH (hydrated calcium hypochlorite) and water or liquid bleach (aqueous sodium hypochlorite). Never flush any disinfectant into a storm drain or body of water.

- If sewage has ponded, the pond should be pumped dry and the residue and site cleanup managed as previously mentioned

5.4 **Spill Classification and Quantification**

There are three general classifications of SSOs:

- Category 1 SSO – Spills of any volume that reach surface water or are likely to reach surface waters because they entered the storm drain system or a ditch and were not fully recovered
- Category 2 SSO – Spills over 1,000 gallons that do not reach surface water
- Category 3 SSO – Spills less than 1,000 gallons that do not reach surface water

No matter what the SSO classification or its volume, the need for containment, control and recovery procedures by STHWW employees and our responsibility to understand and comply with the reporting requirements remains.

Spill quantification requires careful documentation and close observation of discharges. Staff should make every effort to maintain a careful chronology of the events during a spill and make every attempt to conduct linear measurements of the discharge streams and flow velocities in order to effectively quantify the spill volumes. Photo documentation of the spill event should also become a routine procedure in the spill documentation process. Official estimates of the spill volume will be the responsibility of the Director of Public Works. A few other types of spills, and the compliance requirements, are outlined in the next couple of sections.

5.5 **Spill Documentation**

Aside from the "SSO Event Report" (attached), STHWW employees may also (at the discretion of the Director of Public Works) compile, document and report an "Official Spill Record" which can assist in providing a record of the events of the incident. The Spill Events Record may include:

- Event times (failure, discharge start and stop)
- Personnel on site
- Arrival and departure time of all personnel
- Equipment on site

- Milestone events (if any)
- Photo and video documentation
- Spill volume estimates and the method used to determine the estimates
- Arrival time of outside resources (and list of the resources)
- Regulatory agency representatives on site (obtain their business cards)
- Spill recovery volume estimates

5.6 **Posting**

Posting contaminated water signs is required downstream of the location of an SSO. Posting should be implemented under the following guidelines:

- Lagoons, wetlands, or creek beds shall be posted at 50 foot intervals for high use areas and 600 foot intervals for low use areas. Both sides of creek beds must be posted.



5.7 **Spill Sampling and Monitoring**

If more than 50,000 gallons reached waterways, sampling of the body of water is mandatory. Sampling procedures are included in the Water Quality Monitoring Program (attached). At the direction of the Director of Public Works, sampling of lower volume spills may also be performed. Conducting sampling at the appropriate locations allows staff to establish and monitor the levels of contamination as well as to establish or compare with the natural background levels of bacteria in the receiving waters.

All summary sampling and monitoring results will be uploaded into CIWQS at http://ciwqs.waterboards.ca.gov.

6.0 Reporting

It is the responsibility of the Director of Public Works or the Sewer Supervisor to make the initial notifications to OES and to prepare the preliminary written report for review.

6.1 **Notification to the Office of Emergency Services (OES)**

The Office of Emergency Services will be notified of SSOs where 1,000 gallons or more reach waterways or are likely to reach waterways when not fully recovered from a drainage channel or a stormdrain system. Procedures are as follows:

- Notification will be made by phone at (800) 852-7550 within 2 hours of becoming aware of the SSO. The caller will record the OES notification control number.

- The caller shall report the following information:
  - The name and phone number of the caller reporting the spill
  - The responsible owner of the sewer system (STHWW)
  - The location of the overflow
  - The estimated total overflow amount
  - The surface water(s) that may be affected by the overflow
  - Whether or not the spill is still occurring at the time of the notification

- If the flow volume or other information is significantly revised at a later point, the caller (or a supervisor) will call back to update OES on the spill volume.

6.2 **CIWQS Notifications**

All SSOs must be electronically reported to the California Integrated Water Quality System (CIWQS) at http://ciwqs.waterboards.ca.gov. The State Water Board provides screen-by-screen CIWQS reporting instructions in the Discharger Workbook available at: http://www.swrcb.ca.gov/water_issues/programs/sso/docs/discharger_workbook.pdf

Depending on the SSO classification, there are different timeframes for CIWQS reporting:

Category 1 (all spills that reach waterways or are likely to reach waterways when not fully recovered from a drainage channel or a stormdrain system):

- Submit draft report within 3 days of becoming aware of SSO
- Finalize report and certify within 15 days of the end of the SSO
- If more than 50,000 gallons reached the waterways:
  - Submit all water quality results to CIWQS as soon as they become available (see Section 5.7 and attached Water Quality Monitoring Program)
  - Develop and submit an SSO Technical Report within 45 days of the end of the SSO (refer to requirements in Provision B.5 of the MRP WQ 2013-0058-EXEC).

Category 2 (spills of 1,000 gallons or more that do not reach waterways or that are fully recovered)

- Submit draft report within 3 days of becoming aware of SSO
- Finalize report and certify within 15 days of the end of the SSO

Category 3 (spills less than 1,000 gallons that do not reach waterways or that are fully recovered):

- Submit certified report within 30 calendar days of the end of the month in which the SSO the occurred.

6.3 **Notification to other recipients**

OES will notify Napa County Department of Environmental Management in the event that an SSO is reported to OES. In any area where an SSO has the potential to imminently and substantially affect human health the public must also be notified through posting (see Section 5.6). Beyond that, at the direction of the City Manager, STHWW will forward a copy of the spill report, depending on the nature, location and volume of the spill, to other public agencies, local interest groups or the media as warranted.

6.4 **Reporting Responsibilities**

The Sewer Supervisor has the authority to make the Initial Notification to OES. The electronic reporting to CIWQS can be made by the Sewer Supervisor or the Director of Public Works, but shall be reviewed for completeness and accuracy before being certified.

6.5 **Report Forms**

All spill information must be recorded using the STHWW "SSO Event Report" Form (attached).

6.6 **Retaining Records**

All spill reporting records, including the STHWW Overflow Reporting Log, will be retained for a period of five (5) years from the date of the final report in the Administrative Office files. The records shall be filed in the "NPDES, Spill Report Records" file.

7.0 Revisions & Employee Training

7.1 **ERP Revisions**

The STHWW Overflow Emergency Response Plan shall be reviewed and revised, as necessary, after each overflow event. The Director of Public Works will conduct an annual review of the ERP in order to maintain a document that remains up-to-date.

7.2 **Annual Training**

The Director of Public Works, or his/her designee, shall schedule annual training designed to identify resource shortcomings, clarify roles and responsibilities, improve response performance and reveal any response weaknesses. The training may consist of:

- Response training –An annual awareness training meeting will be conducted with respect to the details of the ERP and the responsibilities of each employee. All employees will attend this meeting. Additional training sessions may also be conducted by the Sewer, Wastewater Treatment and other divisions to further familiarize employees with the response procedures.

- Tabletop exercise – A simulated spill event may be scheduled, according to need, to allow the exercise participants to discuss and understand the necessary response actions, test equipment and gauge the response ability of the employees. Scheduling a simulated Tabletop exercise will be at the discretion of the Director of Public Works.

- Spill Review Committee – After each SSO, STHWW's will convene a Spill Review Committee to review the event's cause, the procedural response of the employees, the regulatory and compliance documentation and whether additional issues and/or resources have to be addressed.

8.0 Phone Directory

The following phone, fax and email directory provides STHWW personnel with the current contacts for regulatory agencies and resources:

REGULATORY AGENCIES

Governor's Office of Emergency Services (OES)
(800) 852-7550
(916) 262-1677 Fax

Regional Water Quality Control Board (Regional Water Board)
(510) 622-2460
(510) 622-5633 Fax

Napa County Department of Environmental Management
(707) 253-4471 (business hrs.)
(800) 540-5306

CONTRACTOR SERVICES

Montelli Construction	Harold Smith & Son	M&M Sanitary
436 St. Helena Hwy	800 Crane Ave.	American Canyon
944-1167	963-7977	224-4548

OTHER CONTACTS

PG&E
(800) 743-5000 (Emergency number)

REMIF (City Insurance Company)
(707) 938-2388
(707) 938-0374 Fax

Napa County Public Works
(707) 253-4351
(707) 944-0196 Roads

Upper Valley Disposal
(707) 963-7988

Railroad Police
(707) 477-5955 (Emergency)

Caltrans
(707) 224-8684

City of St. Helena
Office of the Director of Public Works
1480n Main Street } St. Helena, CA } 94574
Phone: 707.968.2658 | Fax: 707.967.2806
www.cityofsthelena.org

SSO Event Report

No.	Question	Multiple Choice Response Circle One (if blank provide written response)
	* Denotes required response	
Physical Location Details		
1	Address *	
	City	St. Helena
	State	CA
	ZIP	94574
2	**Estimated Spill Volumes**	
a)	Estimated spill volume that reached a separate storm drain that flows to a surface water body? *	in gallons
b)	Estimated spill volume recovered from the separate storm drain that flows to a surface water body? (Do not include water used for clean-up) *	in gallons
c)	Estimated spill volume that directly reached a drainage channel that flows to a surface water body? *	in gallons
d)	Estimated spill volume recovered from a drainage channel that flows to a surface water body? *	in gallons
e)	Estimated spill volume discharged directly to a surface water body? *	in gallons
f)	Estimated spill volume recovered from surface water body? *	in gallons
g)	Estimated spill volume discharged to land? (Includes discharges directly to land, and discharges to a storm drain system or drainage channel that flows to a storm water infiltration/retention structure, field, or other non-surface water location. Also, includes backups to building structures) *	in gallons
h)	Estimated spill volume recovered from the discharge to land? (Do not include water used for clean-up) *	in gallons
3	Did the spill discharge to a drainage channel and/or surface water?*	Yes | No
4	Did the spill reach a storm drainpipe that is not part of a combined sewer system? *	Yes | No



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www.cityofsthelena.org

SSO Event Report

No.	Question	Multiple Choice Response Circle One (if blank provide written response)
5	If spill reached a separate storm drainpipe, was all of the wastewater fully captured from the separate storm drain and returned to the sanitary sewer system? *	
6	Spill location Name	
7	Latitude of spill location *	
8	Longitude of spill location *	
9	County	Napa
10	Regional Water Quality Control Board	Region 2 - San Francisco Bay
11	Spill location description: (Use attachment if location description is more than 2000 charaters)	
12	Number of apperance points *	
13	Spill appearance point *	Combined sewer D.I. (combined CS only) | Force main | Gravity Mainline | Inside Building or Structure | Lateral Clean Out (private) | Lateral Clean Out (public) |Lower Later (private) | Lower Lateral (public) | Upper Lateral (private) | Upper Lateral (public) | Manhole | Other sewer system structure (explain below) | Pump station
14	Spill appearance point explained for "other"	
15	Final spill destination *	Beach | Building or structure | Combined storm drain (combined CS only) | Drainage Channel | Paved Surface | Separate storm drain | Street/curb and gutter | Surface water | Unpaved surface | Other (specify below)
16	Explanation of final spill destination: (Required if final spill destination is "Other")	
17	Estimated spill start date/time *	_____ /_____ / 20_____ | _____:_____ AM/PM
18	Date and time sanitary sewer system agency was notified of or discovered spill *	_____ /_____ / 20_____ | _____:_____ AM/PM
19	Estimated Operator arrival date/time *	_____ /_____ / 20_____ | _____:_____ AM/PM
20	Estimated spill end date/time *	_____ /_____ / 20_____ | _____:_____ AM/PM



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SSO Event Report

No.	Question	Multiple Choice Response Circle One (if blank provide written response)
21	Spill cause *	Air Relief Value (ARV)/Blow-Off Valve (BOV) Failure | Construction Diversion Failure | CS Maintenance Caused Spill/Damage | Other (specify below) Damage by other not related to CS Construction/Maintannce (specify below) | Debris from Construction | Debris from Lateral | Debris-General | Debris-Rags | Flow exceeded capacity (Separate CS only) | Grease deposition (FOG) | Inappropriate Discharge to CS | Nautral Disaster | Non-Dispersables | Operator error | Pipe structural problem/failure | Pipe structural problem/failure installation | Pump station failure-controls | Pump station failure-mechanical | Pump station failure-power | Rainfall exceeded design (separate CS only) | Roof intrusion | Siphon Failure | Surcharged pipe (combined CS only) | Vandalism
22	Spill cause explanation: (Required if spill Cause is "Other")	
23	Where did failure occur? *	Air Relief Valve (ARV)/Blow-Off Valve (BOV) | Force Main | Gravity Mainline | Lower Later (public) | Mainhole | Upper lateral | Main | Lower Lateral | Other (specify below) | Pump station failure-controls | Pump station failure-mechanical | Pump station failure-power |Siphon | Upper Lateral (private)
24	Explanation of Where Failure Occurred: (Required if Where Failure Occurred is "Other") *	
25	Was the spill associated with a storm event? *	Yes | No
26	Diameter of sewer pipe at the point of blockage or spill cause (if applicable)	inches
27	Material of sewer pipe at the point of blockage or spill cause (if applicable)	
28	Estimated age of sewer pipe at the point of blockage or spill cause (if applicable)	months
29	Explanation of volume estimation methods used: (describe how you developed spill volume estimates for this spill) *	
30	Name and Title (Contact person who can answer specific questions about this SSO) *	Cleaned up (mitigated effects of spill) | Contained all or portion of spill | Inspected sewer using CCTV to determine cause | Restored flow | Returned all or portion of spill to sanitary sewer system | Other (specify below)
30b	Contact Person Phone Number *	

February 2014

CITY OF ST. HELENA

Sanitary Sewer Overflow Water Quality Monitoring Plan

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A PROJECT MANAGEMENT

A.1 PROJECT ORGANIZATION

This monitoring program will be conducted under the direction of the City of St. Helena (the City) with guidance provided by Larry Walker Associates (LWA). Caltest Analytical Laboratory of Napa (Caltest) will serve as the primary laboratory, but alternatives might be used due to logistics and timing. The Project Contact list is provided in **Table 1.**

Table 1. Project Contact List

Name	Role	Agency/Company	Phone Number	Email
Michael Sample	Monitoring Coordinator/Field Crew	City of St. Helena		
Kristine Corneillie	MRP Technical Advisor	LWA	408.261.3996 (o)	krisc@lwa.com
Todd Albertson	Laboratory Project Manager	Caltest	707.258.4000 (o)	todd@caltestlabs.com

A.2 BACKGROUND

In 2006, the State Water Resources Control Board (State Water Board) adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SSS WDRs), Order No. 2006-0003-DWQ. The Monitoring and Reporting Program (MRP) established monitoring, record keeping, reporting, and public notification requirements. On September 9, 2013, Order No. WQ 2013-0058-EXEC became effective that clarified and expanded requirements of the original MRP and defined new sanitary sewer overflow (SSO) categories. The SSO definitions, as well as the notification, monitoring, and technical reporting requirements are shown in **Figure 1**.

This monitoring plan addresses water quality monitoring requirements for Category 1 SSOs that are greater than or equal to 50,000 gallons. As defined by Order No. WQ 2013-0058-EXEC, the following elements must be included in an SSO Water Quality Monitoring Plan to comply with subsection D.7(v) of the SSS WDRs:

1. Protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Water quality monitoring analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Procedures for proper maintenance and calibration of monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program and documentation of maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Water quality sampling within 48 hours of the City becoming aware of the SSO, for, at a minimum, the following constituents:
    a. Ammonia
    b. Total Coliform

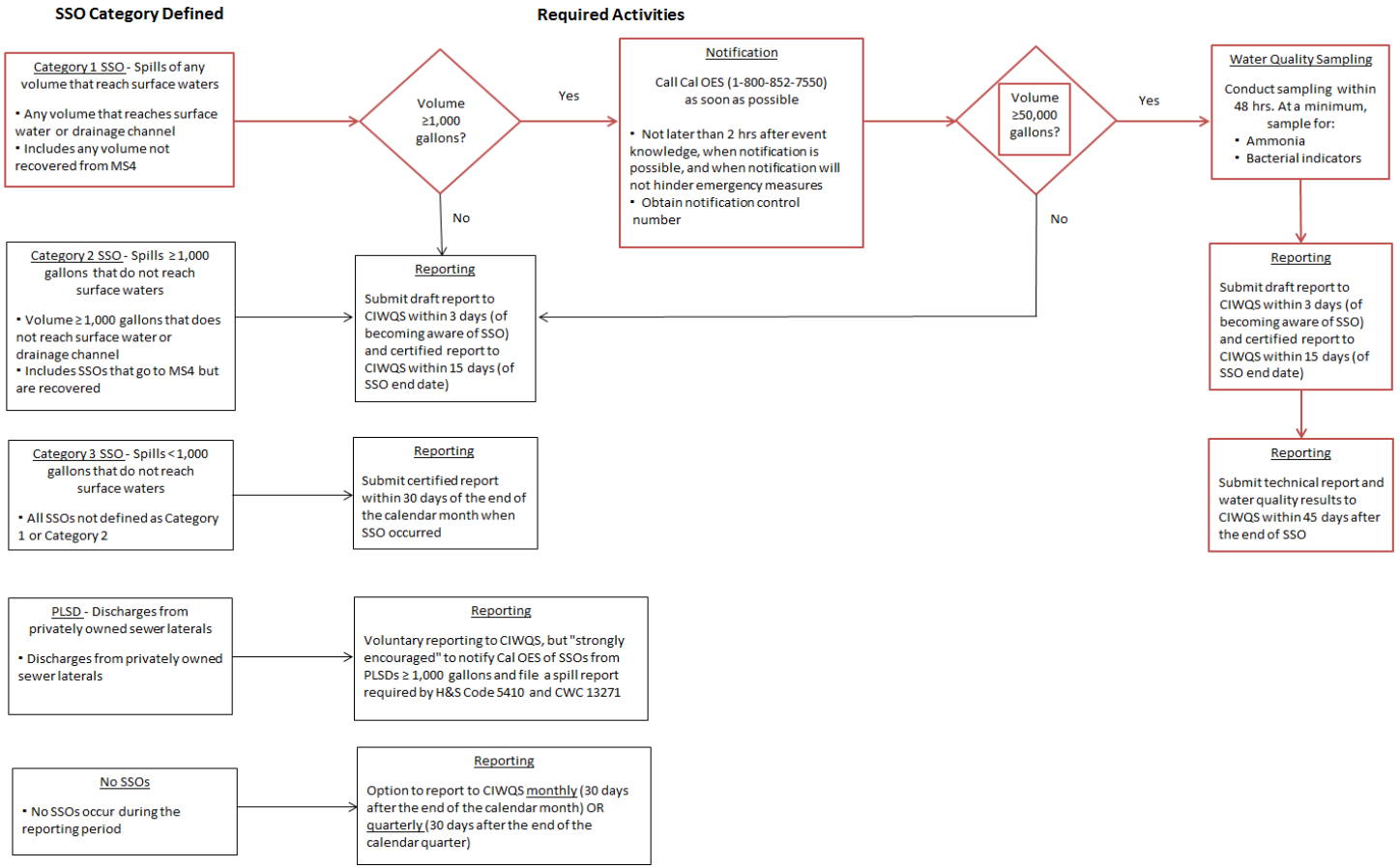


Figure 1. SSO Action Flow Chart (Based on Order No. WQ 2013-0058-EXEC)

B DATA GENERATION AND ACQUISITION

B.1 SAMPLING PROCESS DESIGN

B.1.1 Sampling Event Timing

The Monitoring Coordinator will determine when the field crew will be mobilized to sample the receiving water. Sampling must be conducted within 48 hours after initial Category 1 SSO and spill volume notification. The monitoring coordinator will target daylight sampling within the first 24 hours of the SSO notification, but sample timing may be shifted due to safety and logistical issues.

Sampling will not be conducted if there are any concerns regarding field crew safety. These concerns may include heavy rain events, which compromise access points through flooding and swift currents. Thunderstorms will also be avoided when lightning is occurring. Sampling will only be conducted if there are at least two members of the field crew team available.

B.1.2 Monitoring Site Locations

Upon notice of a Category 1 SSO, the Monitoring Coordinator will determine where the field crew will sample. The Monitoring Coordinator will be responsible for determining the sampling locations. At a minimum, sampling will occur where the SSO enters the surface water body, 100 feet upstream of the entry point, and at least one point downstream of the entry point. The downstream location(s) will be determined from visual monitoring and estimated spill travel time (see Section B.3.1). The Monitoring Coordinator will provide a detailed description of potential monitoring site locations to the Field Crew.

Upon arrival at the monitoring sites, the Field Crew will determine the best locations to sample by assessing the hydrology of the receiving water and any safety precautions. The Field Crew should look for locations where the receiving water can easily be entered or sampled mid-channel by a grab pole. Once the sampling site location is selected, but before sampling starts, the Field Crew will record the latitude and longitude of the sampling location into the Field Form (**APPENDIX A**).

B.2 EQUIPMENT PREPARATION

The Field Crew shall maintain a sampling kit with the necessary supplies to conduct a monitoring event. **Table 2** lists the equipment and supplies that will be included in the sampling kit.

Table 2. Monitoring Equipment List

Storm Kit
Spare batteries for field meter (6)
Spare sample labels
Pencils (2) and waterproof pens/markers (2)
Diagonal clippers
Electrical tape
Cable ties (assorted sizes)
Utility knife
Zip-lock baggies (assorted sizes)
Powder-free nitrile gloves
Rubber bands, heavy duty
Camera

- Duct tape
- GPS Device
- Camera

SSO Water Quality Monitoring Plan
Log books/ Field forms
Chain-of-custody forms
New sample bottles
Intermediate containers
Flow meters
Coolers and ice
Cellular phone
Any necessary safety gear
Grab pole
Umbrella
Paper towels
Trash bags

B.2.1 Sampling Containers

The Field Crew will maintain a supply of sampling bottles for at least 4 events. The Field Crew will order bottles directly from the laboratory and will reorder bottles if they are unused for six months. **Table 3** includes the required bottle types, sample volumes, and preservatives for ammonia and total coliform samples.

Table 3. Constituents to be Analyzed, Sample Volume Required, and Sample Type

Constituent	Optimum Vol. (L)	Min. Vol. (L)	Collection Method	Bottle Type	Preservation	Analytical Lab
Ammonia (NH_3)	0.500	0.100	Direct Fill	500mL Plastic	H_2SO_4, <6° C	Caltest
Total Coliform	0.100	0.100	Direct Fill	100mL Sterile Plastic	<6° C	Caltest

B.2.2 Field Meter Calibration

All field meters will be properly calibrated and maintained by the Field Crew. Calibrations will be performed according to the methods and frequency recommended by the equipment manufacturer. When calibrating the instruments, the Field Crew will document all pertinent information in a Calibration Log (**APPENDIX B**) and keep it with the rest of the project documentation.

B.3 WATER QUALITY MONITORING

The Field Crew will be responsible for the following tasks upon arrival at the monitoring location:

1. Determine best sampling locations and record latitude and longitude readings for the upstream, SSO entry point, and downstream sampling sites.

2. Calculate spill travel time at the downstream monitoring site.

3. Collect water quality samples in the following order: first at the SSO entry point, second at the downstream site(s), and third at the upstream monitoring site.

4. Complete all field forms and prepare the samples for delivery to the laboratory.

The following sections outline the necessary steps the Field Crew must take when performing the above actions.

B.3.1 Spill Travel Time

When the Field Crew arrives at the downstream monitoring site, they will estimate spill travel time by calculating travel time within enclosed storm drains (distance traveled/initial spill rate) and within open surface waters. Travel time within the open surface waters can be determined two different ways depending on the accessibility and safety of the monitoring site.

B.3.1.1 Velocity Probe

Using a velocity probe is the preferred method of spill travel time calculation, but it requires extra safety precautions, since the Field Crew will have to wade and cross the surface water body.

1. The Field Crew must first ensure that the receiving water body is flowing at a safe rate and its span can be crossed by wading.

2. One Field Crew member will be responsible for using the velocity probe and the other will stand on the shore and record the readings.

3. The Field Crew member with the velocity probe will enter the surface water at the shore and begin to take a velocity measurement, roughly six inches below the surface. The Field Crew member will wait for the reading to stabilize before reporting the value to the recording Field Crew member.

4. The Field Crew member will then move the velocity probe two feet further into the surface water body and make another measurement. This will continue until the entire span of the receiving water body has been measured.

5. The Field Crew will not cross into any unsafe portions of the receiving water body and will note on the Field Form if the measurements are only for a portion of the channel.

B.3.1.2 Visual Velocity Estimation

If the receiving water body is unsafe to enter, the velocity can be measured by observing floating debris.

1. The Field Crew members will stand on the edge of the channel, 30 feet apart.

2. The Field Crew member standing upstream will indicate when a large piece of debris passes their point. At this time the Field Crew member standing downstream will start timing.

3. Once the same piece of debris passes the downstream Field Crew member, they will stop timing and calculating the velocity (ft/sec) by dividing 30 feet by the number of seconds it took for the debris to travel that length.

If there isn't any large debris floating in the surface water, the upstream Field Crew member can use a nearby stick or other buoyant object.

B.3.2 Sample Collection Methods

Sample collection methods will vary depending on the surface water and the safety of the Field Crew. Clean, powder-free, nitrile gloves will be worn for all bottle handling. The direct fill sample collection method is the preferred sampling method, since it does not use an intermediate container. In cases where the direct fill method cannot be used due to accessibility or safety an intermediate bottle and a grab pole can be used.

B.3.2.1 Direct Fill Sample Collection

The direct fill sample collection method will be used in cases where the surface water can be entered safely by the Field Crew. Field Crew will wear waders and ensure that the water level and velocity of the surface water are low enough to provide a safe entry and sampling environment.

Ammonia and bacteriological sample bottles will be filled by direct submersion to approximately mid-depth as follows.

1. Wade to approximately the area of the water body with the highest flow rate and face upstream. This will most likely be midstream, but can be in a different portion of the stream, depending on the hydrology.
2. Submerge the sample bottle with its cap on to approximately mid-depth at a location of significant flow (avoid stagnant water). Hold the bottle upright under the surface while it is still capped.
3. Open the lid carefully just a little to let water run in. Fill the bottle and screw the cap tightly while the bottle is still underneath the surface.
4. Remove bottle from stream and place on ice.

B.3.2.2 Intermediate Container Sample Collection

If the flow, water level and/or access point are deemed unsafe then an intermediate bottle attached to a grab pole will be used for sample collection. A clean, new intermediate bottle will be used for each sampling event and sampling site.

Ammonia and bacteriological sample bottles will be filled by intermediate container sample collection as follows:

1. Attach the intermediate bottle to an expandable pole using tape or cable ties and remove lid.
2. Submerge the intermediate bottle, attached to expandable pole, to approximately mid-depth at a location of significant flow (avoid stagnant water).
3. Remove bottle from water and empty contents. Repeat this twice more.
4. Once the intermediate bottle is properly rinsed, return it to approximately mid-depth at a location of significant flow (avoid stagnant water).
5. Using the intermediate bottle, fill the bacteriological sample container and then the ammonia bottle. Ensure that neither bottle overflows and that the preservative stays in the sample container.
6. After bottle fills, replace bottle lid, remove bottle from pole, and place on ice.

B.4 SAMPLE HANDLING AND CUSTODY

The Field Crew will ensure that all samples are collected and submitted to their respective labs by the maximum hold times listed in **Table 4**. If timing or logistics prevent a hold time being met, the Field Crew will contact the Monitoring Coordinator.

Table 4. Constituent Hold Times and Analytical Methods

Constituent	Analytical Method[1]	Maximum Hold Times	Analytical Lab
Ammonia (NH_3)	SM 4500-NH3-G	28 days	Caltest
Total Coliform	SM 9221-B/E	6 hours	Caltest

B.4.1 Sample Bottle Labels

The Field Crew will label all sample bottles with a waterproof label, which will contain the agency name, sample collection date, analyte, analysis method, station number and name and Field Crew names. The analytes and analysis methods are shown in **Table 4** and the station identification protocols are shown in **Table 5**.

Table 5. Site Names for Sample Handling

Station Number	Station Name
US-001	Surface Water Upstream
ENTRY	Surface Water Point of Entry
DS-001	Surface Water Downstream 1
DS-XXX[1]	Surface Water Downstream XXX[1]

1 Additional downstream monitoring sites will be labeled in sequential order starting from the SSO surface water point of entry.

Example sample bottle label:

Direct Fill Sample Bottle Label

City of St. Helena

Station Number - ____

Analyte – Analysis Method _____

Date & Time:_____ Collected by:_____

B.4.2 Transport

All samples will be kept on ice from the time of collection to the time of receipt by laboratory personnel. It is imperative that all samples be analyzed within maximum holding times (see **Table 4**). Samples will be shipped/delivered as specified in **Table 6**.

Table 6. Analytical Laboratories

Analytical Laboratory	Analysis	Shipping Method
Caltest Attn. Todd Albertson 1885 North Kelly Road Napa, CA 94558 707.258.4000	Ammonia and bacterial	Hand delivered/courier

B.4.3 Chain of Custody Form

Chain-of-Custody (CoC) forms will be filled out by the Field Crew for all samples submitted to the laboratories. CoCs will contain the following information:

- Sampler name
- Address (where the results will be sent)
- To whom the laboratory results are being sent
- Sample collection date and time
- Sample location
- Analysis method requested
- Sample container type and number
- Comments/special instructions
- Samples relinquished by (signature, print name, date)
- Samples received by (signature, print name, date)

An electronic data deliverable will be requested for all sample reports. Example lab specific CoCs are included in **APPENDIX C.**

C REPORTING

A Category 1 SSO in which 50,000 gallons or greater are spilled to a surface water requires multiple stages of notification and reporting. The City will adhere to the required timeline outlined in **Table 7**, which begins when the City becomes aware of an SSO. The specific requirements for notification and reporting are specified by Order No. WQ-2013-0058-EXEC and detailed in the City's Sanitary Sewer Management Plan.

Table 7. Notification and Reporting Timeline

Time Period	Requirement
<2 Hours	Notification to CalOES
Within Three Business Days	Draft Category 1 SSO Report to CIWQS
Within 15 Calendar Days	Certified Category 1 SSO Report to CIWQS
Within 45 Calendar Days	SSO Technical Report with water quality results to CIWQS

Appendix A

Field Forms

SSO Water Quality Monitoring Plan Field Log			
General Information			
Event ID:	Date:	SSO Time:	
Sampling Personnel:			
SSO Description			
Time of Notification:	Size:	Location:	
Weather (fog, rain, wind, etc):			
Total precipitation during previous 5 days:			
Monitoring Sites			
US-001			
Arrival Time:		Departure Time:	
GPS Coordinates	Latitude:	Longitude:	
Sample Location	☐ Mid-Channel	☐ Bank	
Sample Time:	Total Coliform:	Ammonia:	
Floating Material or Debris:			
Water Color/Turbidity:			
Odor:			
POINT of ENTRY			
Arrival Time:		Departure Time:	
GPS Coordinates	Latitude:	Longitude:	
Sample Location	☐ Mid-Channel	☐ Bank	
Sample Time:	Total Coliform:	Ammonia:	
Floating Material or Debris:			
Water Color/Turbidity/Odor:			
Estimated Spill Travel Time to Monitoring Site:			
DS-001			
Arrival Time:		Departure Time:	
GPS Coordinates	Latitude:	Longitude:	
Sample Location	☐ Mid-Channel	☐ Bank	
Sample Time:	Total Coliform:	Ammonia:	
Floating Material or Debris:			
Water Color/Turbidity/Odor:			
Estimated Spill Travel Time to Monitoring Site:			
Page __ of ___			

SSO Monitoring Plan Field Log (Additional Downstream Sites)		
DS-____		
Arrival Time:	Departure Time:	
GPS Coordinates	Latitude:	Longitude:
Sample Location	☐ Mid-Channel	☐ Bank
Sample Time:	Total Coliform:	Ammonia:
Floating Material or Debris:		
Water Color/Turbidity/Odor:		
Estimated Spill Travel Time to Monitoring Site:		
DS-____		
Arrival Time:	Departure Time:	
GPS Coordinates	Latitude:	Longitude:
Sample Location	☐ Mid-Channel	☐ Bank
Sample Time:	Total Coliform:	Ammonia:
Floating Material or Debris:		
Water Color/Turbidity/Odor:		
Estimated Spill Travel Time to Monitoring Site:		
DS-____		
Arrival Time:	Departure Time:	
GPS Coordinates	Latitude:	Longitude:
Sample Location	☐ Mid-Channel	☐ Bank
Sample Time:	Total Coliform:	Ammonia:
Floating Material or Debris:		
Water Color/Turbidity/Odor:		
Estimated Spill Travel Time to Monitoring Site:		
DS-____		
Arrival Time:	Departure Time:	
GPS Coordinates	Latitude:	Longitude:
Sample Location	☐ Mid-Channel	☐ Bank
Sample Time:	Total Coliform:	Ammonia:
Floating Material or Debris:		
Water Color/Turbidity/Odor:		
Estimated Spill Travel Time to Monitoring Site:		
Page __ of ___		

Appendix B

Calibration and Maintenance Logs

Calibration and Maintenance Log

Instrument Model	Type of Calibration or Maintenance	Date of Calibration or Maintenance

Appendix C

Chain of Custody Forms (CoCs)

Caltest ANALYTICAL LABORATORY
1885 N. KELLY ROAD NAPA, CA 94558 (707) 258-4000 FAX (707) 226-1001

PAGE ____ OF ____

SAMPLE CHAIN OF CUSTODY

PROJECT NAME / PROJECT NUMBER:

P.O. NUMBER

LAB ORDER #

CLIENT: Town of Yountville

REPORT ATTN:

MAILING ADDRESS: | STATE: | ZIP

BILLING ADDRESS: | ATTN:

PHONE NUMBER: | FAX PHONE NUMBER: | SAMPLER (PRINT & SIGN NAME):

ANALYSES REQUESTED

TURN-AROUND TIME
[X] STANDARD
[ ] RUSH
DUE DATE:

CALTEST LAB #	DATE SAMPLED	TIME SAMPLED	SAMPLE MATRIX*	CONTAINER TYPE/ AMOUNT**	PRESERVATIVE	SAMPLE IDENTIFICATION / SITE	CLIENT LAB #	COMP. or GRAB	Ammonia	Total Coliform								REMARKS
				1-500mL HDPE	H2SO4	US-001			X									
				100mL	None	US-001				X								*** 6 hour holding time!
				1-500mL HDPE	H2SO4	ENTRY			X									
				100mL	None	ENTRY				X								*** 6 hour holding time!
				1-500mL HDPE	H2SO4	DS-001			X									
				100mL	None	DS-001				X								*** 6 hour holding time!

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	RECEIVED BY

FOR LAB USE ONLY

Samples: WC ____ MICRO ____ BIO ____ AA ____ SV ____ VOA ____ pH? Y/N TEMP: SEALED: Y/N INTACT: Y/N

BD: BIO ____ WC ____ AA ____

CC: AA ____ SV ____ VOA ____

SIL: HP ____ PT ____ QT ____ VOA ____

W/HNO_3 ____ H_2SO_4 ____ NaOH ____

PIL: HNO_3 ____ H_2SO_4 ____ NaOH ____ HCL ____

COMMENTS:

R ____ PR ____ M ____ F ____

*MATRIX: AQ = Aqueous Nondrinking Water, Digested Metals; FE = Low R.L.s, Aqueous Nondrinking Water, Digested Metals; DW = Drinking Water; SL = Soil Sludge, Solid ; FP = Free

**CONTAINER TYPES: AL = Amber Liter; AHL = 500 ml Amber; PT = Pint (Plastic); QT = Quart (Plastic); HG = Half Gallon (Plastic); SJ = Soil Jar; B4 = 4oz. BACT; BT = Brass Tube; VOA = 40mL VOA; OTC - Other Type Container

WHITE - LABORATORY YELLOW - CLIENT COPY TO ACCOMPANY FINAL REPORT PINK - CLIENT COPY AS RECEIPT

SSO and Backup Response Plan
Field Guide

City of St. Helena

Sanitary Sewer Overflow and Backup Response Plan

Field Guide





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Sanitary Sewer Overflow and Backup Response Plan

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SSO/Backup Response Plan Field Guide

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Customer Relations Practices Following a Sewer Backup

It is important for employees to communicate effectively with customers, especially in sewage overflow and backup situations. How we communicate - on the phone, in writing, or in person -is how we are perceived. Good communication with the homeowner results in greater confidence in our ability to address the problem satisfactorily, less chance of having the homeowner prolong the claims process, and less chance of him/her exaggerating the damage done to their property.

As a representative of your agency, you will occasionally have to deal with an angry homeowner. A sewer backup is a stressful event and even a reasonable homeowner can become upset should he/she perceive us as being indifferent, uncaring, unresponsive, or incompetent.

Although sometimes difficult, effective management of a sewage backup situation is critical. If it is not managed well, the situation can end up in a costly prolonged process with the homeowner. We want the homeowner to feel assured that we are responsive and the homeowner's best interest is a top priority.

A Few Communication Tips

1. Give the homeowner ample time to explain the situation or to vent. Show interest in what the homeowner has to say, no matter how many times you have heard it before, or how well you understand the problem.
2. As soon as possible, let the customer know that you will determine if the source of the sewer backup is in the public sewer and, if it is, will have it corrected as quickly as you can.
3. Acknowledge the homeowner's concerns. For example, if the homeowner seems angry or worried about property damage, say something like, "I understand you're concerned about the possible damage to your property, but a professional cleanup crew can restore the area, and if it is determined that the agency is at fault, the property owner has the right to file a claim for any reasonable repairs or losses resulting from this incident."
4. Express understanding and empathy for any inconveniences caused by the incident, but do not admit fault.
5. As much as possible, keep the homeowner informed on what is being done and will be done to correct the problem.
6. Keep focused on getting the job done in a very professional manner. Focus on the problem without unnecessary small talk with the homeowner.
7. Don't find fault or lay blame on anyone.

SSO/Backup Response Plan | FG 2.1

How to Use a Hydroflusher to Clear a Line Blockage

Overview

Procedures for opening and cleaning a blocked municipal sewer line with a high-velocity waterjet. Individual situations may be unique, but use these basic procedures for any jetting project.

Best tools: High-velocity flushing trucks. The jet may be a combination machine or a truck- or trailer-mounted jetter.

Types of municipal sewer systems:

- **Sanitary sewers** carry waste from homes and businesses to a municipal wastewater treatment plant
- **Storm sewers** carry stormwater runoff to streams and rivers. Storm sewers carry heavier waste (sand, silt and gravel) than sanitary sewers.

The size of the pipe and the type of sewer dictate cleaning procedures.

Safety

- **Wear necessary PPE:** Eye protection, coveralls, hardhat, work boots and work gloves.
- Follow the **CalTrans** (*MUTCD*) **Traffic Control Manual** and be aware of manhole hazards.
- Follow all **OSHA rules** when entering confined spaces (manholes)
- **Proper tools for manhole lid removal:** Gas tech, manhole lifter and traffic control
- **Never enter a manhole (confined-space) with the line under pressure because of the possibility of drowning or personal injury.**

Professional Standards

- Follow all safety rules
- Always consider every option available to hydroflush a municipal sewer system in a safe and cost effective manner.
- Ensure that the residents and businesses within the work area or jurisdiction do not experience problems due to high pressure back ups or damage.
- Effectively clean the sewer mains by incorporating these standard procedures of maintenance, experience, training and available tools to complete required day-to-day operations.

Locating the Blockage

STEP 1

- Determine the direction of flow in the system. Wastewater flows downhill in a gravity-based sewer.
- Use a sewer map and/or your familiarity with the area to identify the direction of flow, OR remove a manhole lid and look into the invert.

STEP 2

- Keep moving to the nearest downstream manhole until the blockage is located. A manhole filled with wastewater or with a flow line above the sewer shelf is typically the problem area.
- A full manhole means water and debris have entered the manhole, but because of a blockage downstream cannot drain away.
- The blockage is normally between the first empty manhole (downstream) and the first full manhole (upstream).

Setting up the Hydroflusher

STEP 1

- Position the vehicle/sewer-cleaning equipment at nearest downstream manhole below the stoppage on the side nearer the blockage.
- On steep lines where the downstream manholes are less than 5 feet deep, necessary precautions to prevent secondary overflows at downstream manholes must be taken. Form a containment barricade near the downstream manhole with use of sandbags, etc.

STEP 2

- Position the water jet over the 1st empty manhole downstream of the blockage

STEP 3

- If not already attached, attach 20'-25' of leader hose (*a hose of a different color*) to the regular hose – this serves as a benchmark for insertion & retrieval (*NOTE: A leader hose helps prevent the hose from exiting the pipe prematurely & causing injury!*)

***DO NOT** use the alternative method of marking the jet hose five feet from the end!*

STEP 4

- Select a PENETRATING forward jet nozzle with a small angle (*i.e. 15-degrees*) for blockages.

STEP 5

- Install a nozzle extension between the end of the hose & the nozzle to prevent the nozzle and hose from turning up a service lateral causing damage.

STEP 6

- Lower the hose, nozzle extension & nozzle into the manhole & into the pipe invert
- Insert the jet hose through the Tiger Tail & tie the device in place to stabilize it. *Note: failure to use a Tiger Tail or Roller Guide may result in the hose being damaged while flushing the main!*

STEP 7

- Set up a vacuum truck/trailer or have a catcher available to completely capture and remove the debris to avoid future stoppages.

This is a must when breaking mainline stoppages and proper maintenance procedures!

Hydroflushing

STEP 1

- Ensure that the hose, the nozzle extension and nozzle are inserted into the pipe completely and the hose is protected by a hose guide device (*i.e. Tiger Tail*).
- Run the line with just enough pressure to reach the blockage. When you reach the blockage, the hose should stop.

STEP 2

- Begin hydro flushing. Adjust water pressure as needed, but do not exceed 2500psi.
- Clean the sewer from the lower end to the higher end of the flow so that when the hose is retrieved, it works with the downward grade of the pipe and allows for more efficient cleaning of remaining debris.

NOTE: In sewer lines where toilets have bubbled or overflowed due to high pressure back flushing, a lower pressure must be used to prevent additional backups

STEP 3

- If the hose does not advance, pull back on it and then let go (*Be careful not to strain your back!*). Repeat the steps until the hose breaks through the blockage.

STEP 4

- If the hose breaks through and the line is still plugged, run the hose until you hit another plug, then repeat the steps again.

STEP 5

- Clear the blockage by working from the lower end to the higher end of the flow.
- Pull the hose back in a slow continuous speed to ensure that the line is being cleaned sufficiently. Bringing the hose back to fast will leave the pipe with areas not cleaned, which is an unacceptable level of cleaning.

***NOTE**: Always jet the line a few feet at a time, returning the debris to the manhole – completely remove debris so further blockages are not created downstream! Pulling heavy debris is time-consuming and laborious, and if not done properly can cause the hose and nozzle to be buried and stuck. Then you may need to dig up the sewer.*

- The debris is pulled to the manhole by the water flow and the returning hose and nozzle. Allow the hose to enter slowly on the initial passes and pull the hose and nozzle back occasionally to prevent them from exiting a defective pipe or becoming buried in debris.
- Remove the debris using the vacuum portion of the combination truck, or a debris removal hand tool. Anytime you hydro flush a sewer, **remove** the debris completely to avoid future stoppages. If this can't be done, then drag the debris into a high flow trunk main to prevent a stoppage from occurring downstream.
- Always look into the bottom of the manhole for the amount and type of debris being pulled from the pipe to determine the number of passes and the length of the passes needed to clean the sewer effectively.

STEP 6

Once you hear or see the rush of the water, turn off the pressure until the water level drops in the line. Once the flow is back to normal, run the hose up to the next manhole to insure that the line is free of all blockages, then pull the hose back. Check the upstream manholes to make sure the line is running.

STEP 7

Always rewind the jet hose with the water pressure on to avoid flattening the hose.

NOTE: Always turn down the water pressure once you see the leader hose – Run hose until spray from the nozzle fills the pipe, then shut down the water. Shutting the water down prematurely will lave material at/or upstream from the manhole causing another blockage in a very short time.

How to Use a Continuous Rodder

General Safety Guidelines

- Know your equipment: never operate the rodder in excess of it's rated capacity, speed, pressure and temperature
- Take your time: Trying to move too fast or trying to force a blockage can be disastrous
- Inspect equipment before AND after every job: check the condition of the rod, guides, engine and assemblies
- Wear the required PPE including gloves at all times when operating the rodding equipment
- Be aware of working near confined spaces:
  - Always suspect gas and test for it
  - Never smoke around a manhole
  - Never open a manhole while standing over it
  - Give the opening time to ventilate before beginning work
- Never touch the rod when it's rotating and never rotate the rod until everyone is clear
- Be aware of contamination hazards
- Use proper traffic safety procedures when setting up on the street
- Do not enter the manhole to change tools
- Never grasp the rod or coupling with your hands until all torque is relieved.

Setting up the Rodder

STEP 1 Start the rodder unit and let it warm up

STEP 2 Run out the rod until a coupling is between the guide hose and the end of the machine

STEP 3 Insert a length of cut rod through the open center hole of the coupling. DO NOT TOUCH ROD CONTROL LEVERS DURING THIS STEP

STEP 4 Turn the pressure relief valve counter clockwise until it stops

STEP 5 Depress the lateral control lever to retrieve rod into the drive head assembly

STEP 6 Keeping the lever depressed, slowly turn the pressure relief valve clockwise until the rod moves into the machine and is stopped by the rod through the coupling

STEP 7 Holding the lever down, slowly turn the valve clockwise to increase the pressure. Watch the hydraulic oil pressure gauge on the control panel. Stop increasing the pressure when the needle reads 300 to 350 pounds (should be 350 pounds for robotic rodders). Pressure is now set for manual machines. Remove the rod from the coupling and begin work. Secure the lock ring to retain setting. For robotic rodders, continue to Step 8.

(Setting up the Rodder continued)

Continue for **Robotic Rodders** Only

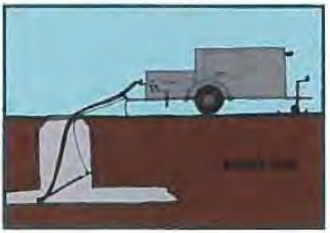
STEP 8 Set the manual pressure to 350 pounds using the above procedures. Reverse the rod travel and send the rod into the guide hose until the rod through the coupling hits the opening of the guide hose.

STEP 9 Leave the lateral control lever locked in the forward position and open the Robotic control box. Set the robotic pressure gauge to about 600 pounds

STEP 10 Flip the MODE switch to automatic and slowly turn the robotic pressure valve counter clockwise until the system activates. Note where on the valve this happens and then dial it down to the next mark. This ensures that the pressure is not too close to the manual or primary system.

STEP 11 The robotic system should now be set up for operation. NOTE: pressures may have to be adjusted periodically when working with heavy materials or on long runs.

Rod Guide Hose Set Up



STEP 1 Place the bell end approximately four to six inches inside the pipe to be cleaned.

STEP 2 Place the lower manhole brace so that it hits the barrel wall of the manhole at approximately a 35° to 45° angle. This will keep the bell end from creeping back up the manhole

STEP 3 Pull the rodder forward to remove all slack from the guide hose.

STEP 4 Confirm that the rod guide hose has a smooth and low-angled entry into the manhole.

Avoid bends in the rod guide hose. Bends force the rod to turn while bent which generates heat which weakens the rod.

Without the manhole brace, the bell end of the hose can creep back into the manhole creating a severe bend.



Controlling Rod Torque

Productive Torque: The force needed to cut into and remove heavy roots and other debris. It can be seen as a gentle flexing of the rod—twisted up to 90 degrees.

Excessive Torque: Develops when the tool is not pulled away from the material it is bound in. It can result in rod damage and downtime in the field. It can be seen as rods twisting past 180 degrees, making the guide hose twist slowing down the reel and making the engine work too hard.

Testing for Rod Damage: Stretch 50-100 feet of rod out on a flat surface. Damaged rods will appear twisted, won't lie flat and bends will be obvious.

CONTROLLING ROD TORQUE IN THE FIELD

1. **Test torque pressure** — To test the torque pressure: Release the reel spin direction lever to neutral to see if the reel stops quickly or even begins to spin in reverse. If it does, then the tool is lodged and the rod is relieving the torque pressure.
2. **Spin off torque** — Move the tool a few feet from the obstruction, and allow the tool to spin off excessive torque. Keep the machine rotating so there is less time needed to resume rotation.
3. **Resume rotation** — Begin rotation again and continue until the material is penetrated.
4. **Monitor** — Continue to watch for torque building up on the rod. Repeat steps above as necessary.

Grease Removal Techniques

Tools:



Square Bar Corkscrew



Auger



Three-Blade Cutter

1 **Attach auger to rod**

Use an ***Auger*** or ***Square Bar Corkscrew*** auger that is at least one full pipe size smaller than the pipe. Send it up the pipe until it reaches the next manhole.

2 **Make pilot hole**

Turn auger at approximately 20-25 rpm and push slowly to cut away material. Refer to "Controlling Rod Torque" procedure to maintain control of the rod torque. If there is too much resistance, remove the auger and use the next smaller size.

3 **Gaff auger to street**

Relieve the torque from the rod and gaff it up to the street.

4 **Attach larger auger**

Attach a larger auger to the rod.

Use the next size auger if there was heavy resistance on the first pull. Use a pipe-sized auger if there was little resistance.

Continue

(Grease Removal Techniques continued)

5 **Make another pass**

Lower the auger into the manhole. Rotate the rod AFTER the tool is safely inside the pipe. Use the same slow rotation (rpm) and speed as on the previous pass. Refer to "Controlling Rod Torque" procedure to maintain control of the torque.

6 **Make a third pass**

When the auger returns to the machine, reverse the direction and return it to the remote manhole. Keep the same rpm as the previous pass, but increase the speed slightly.

7 **Repeat as needed**

If a pipe-sized auger was not used on the second pass, increase the auger size and repeat the above procedure until a pipe-sized auger can be pulled through the pipe to the remote manhole.

8 **Attach cutter**

Attach a ***Three-Blade Cutter*** to the rod. Return this tool to the machine maintaining a slow speed, but increasing the rotation to 50-65 rpm. This tool will scour the pipe walls and remove all remaining material.

9 **Remove guide hose**

Remove the guide hose and then the scene according to agency procedures.

Root Removal Techniques

Tools:



Square Bar Corkscrew



Auger



Concave Root Saw



Three-Blade Cutter

1 **Attach auger to rod**

Use an ***Auger*** or ***Square Bar Corkscrew*** auger that is at least one full pipe size smaller than the pipe. Send it up the pipe until it reaches the next manhole.

2 **Make pilot hole**

Turn auger at approximately 20-25 rpm and push slowly to cut away material. Refer to "Controlling Rod Torque" procedure to maintain control of the rod torque. If there is too much resistance, remove the auger and use the next smaller size.

3 **Gaff auger to street**

Relieve the torque from the rod and gaff it up to the street.

4 **Attach larger auger**

Attach a ***Concave Root Saw*** to the rod.

Use a pipe-sized saw if there was little resistance with the auger. Use a smaller size if there was heavy resistance with the auger.

Continue

(Root Removal Techniques continued)

5 **Back-cut**

Lower the saw into the manhole. Rotate the rod AFTER the tool is safely inside the pipe. Slowly pull the saw back to the machine maintaining a slow speed, but increasing the rotation to 40-55 rpm. Refer to "Controlling Rod Torque" procedure to maintain control of the torque.

6 **Return saw**

When the root saw arrives at the machine, reverse the direction and return it to the remote manhole. Keep the same rpm as the previous pass, but increase the speed slightly. Refer to "Controlling Rod Torque" procedure to maintain control of the torque.

7 **Repeat as needed**

If a pipe-sized root saw was not used, increase the saw size and repeat the above procedure until a pipe-sized saw can be pulled through the pipe to the remote manhole.

8 **Attach cutter**

Attach a ***Three-Blade Cutter*** to the rod. Return this tool to the machine maintaining a slow speed, but increasing the rotation to 50-65 rpm. This tool will scour the pipe walls and remove all remaining material.

9 **Remove guide hose**

Remove the guide hose and then the scene according to agency procedures.

Emergency Stoppage Techniques

These procedures are to be used as a guide when dealing with emergency stoppages. Each situation is unique and may require different set up and operation. Consider access locations, length of pipe section, set up difficulties and traffic when following these basic steps.

Tool: 

Square Bar Corkscrew

1 **Locate manhole**

Locate the closest dry manhole downstream from the surcharged manhole. If possible, set up and operate equipment from there.

If forced to work from the surcharged manhole, use extreme caution and make sure the tool is in the invert and the guide hose is properly set. Test the tool before full engagement to make sure it is in the pipe.

2 **Select auger**

The ***Square Bar Corkscrew*** is a good tool for tearing through blockages. Use one that is at least one full size smaller than the blocked pipe.

3 **Clear obstruction**

Push and rotate the tool up the pipe. As obstructions are met, pull back to relieve the torque and then return to the obstruction. Continue until the tool passes the obstruction. There should be a rush of water. If not, then there may be another obstruction further up the pipe.

Continue

(Emergency Stoppage Techniques continued)

4 **Prepare for water**

When the stoppage is cleared, there will be a rush of wastewater and solids. UNDER NO CIRCUMSTANCES SHOULD THERE BE ANYONE IN THE MANHOLE. Lift the guide hose as needed to make sure the bell end is not preventing obstructions from getting by.

5 **Move up the line**

Once the flow has started, move the tool up the line to the next manhole. Dislodge settled debris and allow obstructions to pass. Pull the tool back slowly to the machine to make sure the obstruction is fully punctured and removed.

6 **Return saw**

Clean the pipe section with proper tools for removing any remaining materials. Pipe must be cleaned with pipe-sized tools to make sure the pipe is fully cleared. Refer to agency policy for the timing of this task.

Containment Procedures

Protection of the public's health and a safety is a top priority!

The overflow must be contained. Containment becomes more difficult if the overflow reaches the storm drain system or drainage way since the overflow can rapidly contaminate receiving waters such as creeks, streams, rivers, and other water bodies. During dry weather, the storm drain system can be used to store the overflow if it can be plugged downstream of the overflow or if the downstream storm drain pump station can be deactivated.

Options for containing the overflow

Overflow onto ground	• Rubber mats at catch basin or inlet • Sand bags in gutter and around catch basin or inlet • Dig earthen trench or build berm to create pond
Overflow in building	• Evacuate affected people if necessary • Use sand bags/plastic sheeting if necessary • Avoid electrical shock - have power turned off if outlets or other energized equipment is sitting in water or is wet
Overflow into storm drain/drainage way	• Trace overflow in storm drainage system to downstream end point • Plug all affected storm system outlets and coordinate with appropriate personnel for strategy to contain spill • Turn off storm water pump station

Required equipment for containing overflow

Overflow onto ground and in buildings	• Rubber mats • Sand bags • Plastic sheets • Bypass pumps and pipe/hose • Vacuum truck
Overflow into storm drain/drainage way	• Plugs • Bypass pump • Vacuum truck
Overflow at pump station	• Emergency generator • Bypass pump

SSO/Backup Response Plan | FG 4.1

Flow Volume Estimation Procedures: Contained Volume

The volume of some small spills can be estimated using this method if the overflow is contained in one area and if it is not raining. In addition, the shape, dimensions, and depth of the spilled wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

STEP 1 Sketch the shape of the contained sewage

STEP 2 Measure or pace off the dimensions.

STEP 3 Measure the depth in several locations. Calculate an average depth for the entire area by adding all measured depths together and dividing by the number of measurements taken.

STEP 4 Convert the dimensions, including depth to feet.

STEP 5 Calculate the area using the following formulas:

Rectangle	Area = length x width
Circle	Area = diameter x diameter x 0.785
Triangle	Area = base x height x 0.5

STEP 6 Multiply the area times the depth

STEP 7 Multiply the volume by 7.48 to convert the volume to cubic feet to gallons

EXAMPLE:



Volume = 100' x 100' x 0.5' x 7.48
Volume = 37,400 gallons

EXAMPLE:



Volume = 100' x 100' x .785 x 0.5' x 7.48
Volume = 29,359 gallons

SSO/Backup Response Plan

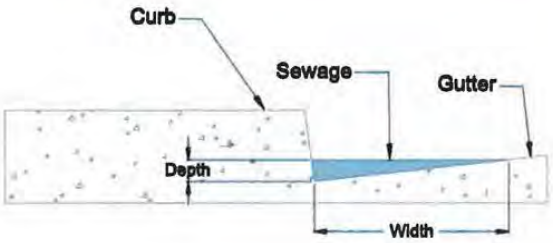
FG 4.2

Flow Volume Estimation Procedures: Contained in a Roadway Gutter

The volume of an overflow contained in a roadway gutter can be estimated by this method:

STEP 1 Measure the length of gutter containing the overflow.

STEP 2 Measure the depth and width of the overflow in the gutter. Refer to the drawing below.



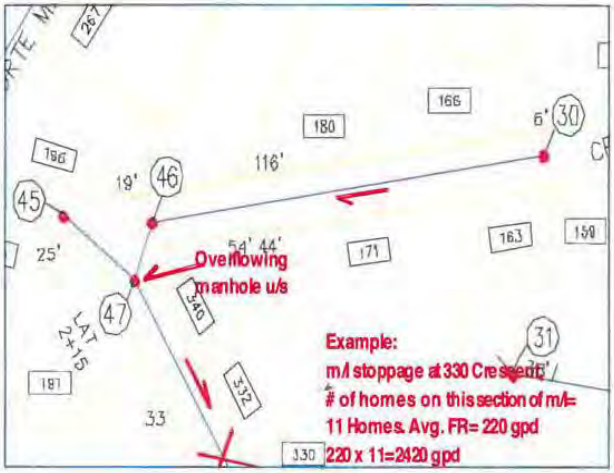
STEP 3 Convert all measurements to feet

STEP 4 Calculate the overflow volume using the following equation:

Volume (gal) = length x width x depth x 3.74

Flow Volume Estimation Procedures: Counting Upstream Connections

FG 4.3



METHOD

1. Count the number of upstream connections.
2. Estimate the time that the overflow has been occurring *(Remember: the overflow was probably flowing before it was reported).*
3. Each residence contributes about 240 gallons per day or about 10 gallons per hour. Multiply the number of residences by 10 and by the number of hours. This gives you the number of gallons.

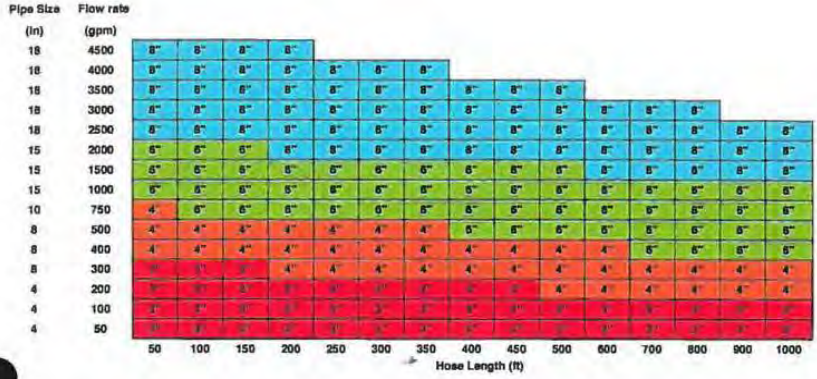
   NOTES:

   a. Remember that 10-gallons per hour is an estimate. This number will be higher during peak water usage times and lower during low water usage times. Take this into account when estimating the overflow volume.

   b. This is a conservative estimate because stoppages rarely stop all of the flow.

FG
5.1

Bypass Pump Selection Table:
0-25 Feet Total Lift

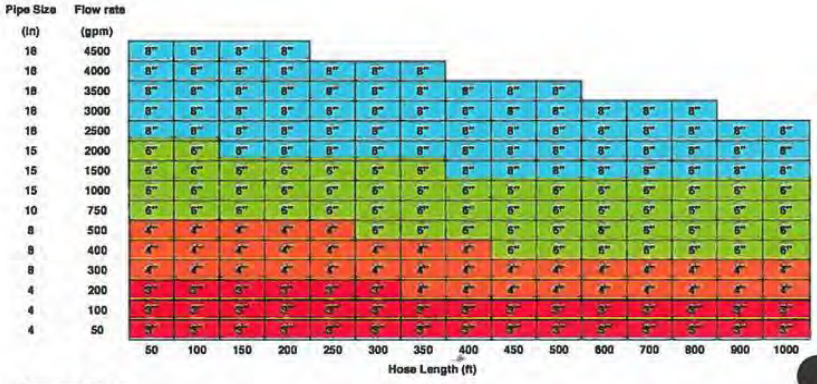


Assumptions

1. All loses are ignored except for frictional losses.
2. Velocity heads are zero because of low speeds.
3. Pump curves are from www rainforrent.com.
   a. 3" pump DV-80 @ 2800 rpm
   b. 4" pump DV-100 @ 2200 rpm
   c. 6" pump DV-150 @ 2200 rpm
   d. 8" pump DV-200c @ 1900 rpm
4. Hose diameter is same as pump size.
5. Fire hose roughness coefficient C=120
6. Inlet and outlet pressures are at atmospheric pressure.
7. Average flow rates for pipe diameters are calculated using average slopes.
8. Maximum 25 feet suction lift.

Pipe Size (In)	Avg Flow Rate (gpm)
4	270
6	314
8	486
10	764
12	1667
15	2153
18	4444

Bypass Pump Selection Table: 25-50 Feet Total Lift



Assumptions

1. All loses are ignored except for frictional losses.
2. Velocity heads are zero because of low speeds.
3. Pump curves are from www rainforrent.com.
   a. 3" pump DV-80 @ 2800 rpm
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6. Inlet and outlet pressures are at atmospheric pressure.
7. Average flow rates for pipe diameters are calculated using average slopes.
8. Maximum 50 feet suction lift.

Pipe Size (in)	Avg Flow Rate (gpm)
4	270
6	314
8	486
10	764
12	1667
15	2153
18	4444

SSO/Backup Response Plan

Determining Overflow Rates From a Manhole: Flow from a Manhole Picture Matching

FG 6.1

Reference Sheet for Estimating Sewer Flow Rate From Overflowing Sewer Maintenance Holes

All estimates are calculated in gallons per minute (gpm)



All photos were taken during a demonstration using metered water from a hydrant in cooperation with the city of San Diego's Water Department

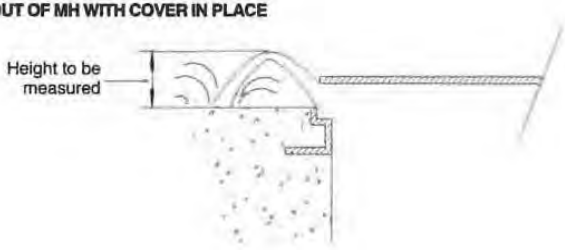
Determining Overflow Rates From a Manhole:
Flow From a Manhole with Cover in Place Tables

The formula used to develop Table 1 measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24" casting. The maximum height of the discharge above the rim is 5 1/4 inches. According to Table 1, these conditions would yield an SSO of 185 gallons per minute.

FLOW OUT OF MH WITH COVER IN PLACE



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

SSO/Backup Response Plan

FG 6.2 side B

Determining Overflow Rates From a Manhole:
Flow From a Manhole with Cover in Place Tables

24" COVER

Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.001	
1/2	3	0.004	
3/4	6	0.008	
1	9	0.013	
1 1/4	12	0.018	
1 1/2	16	0.024	
1 3/4	21	0.030	
2	25	0.037	
2 1/4	31	0.045	
2 1/2	38	0.054	
2 3/4	45	0.065	
3	54	0.077	
3 1/4	64	0.092	
3 1/2	75	0.107	
3 3/4	87	0.125	
4	100	0.145	
4 1/4	115	0.166	
4 1/2	131	0.189	
4 3/4	148	0.214	
5	166	0.240	
5 1/4	185	0.266	
5 1/2	204	0.294	
5 3/4	224	0.322	6"
6	244	0.352	
6 1/4	265	0.382	
6 1/2	286	0.412	
6 3/4	308	0.444	
7	331	0.476	
7 1/4	354	0.509	
7 1/2	377	0.543	
7 3/4	401	0.578	8"
8	426	0.613	
8 1/4	451	0.649	
8 1/2	476	0.686	
8 3/4	502	0.723	

36" COVER

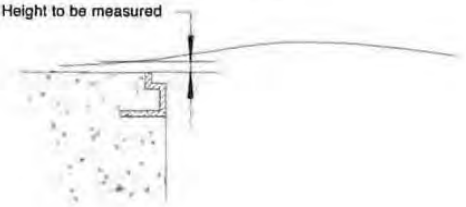
Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.002	
1/2	4	0.006	
3/4	8	0.012	
1	13	0.019	
1 1/4	18	0.026	
1 1/2	24	0.035	
1 3/4	31	0.044	
2	37	0.054	
2 1/4	45	0.065	
2 1/2	55	0.079	
2 3/4	66	0.095	
3	78	0.113	
3 1/4	93	0.134	
3 1/2	109	0.157	
3 3/4	127	0.183	
4	147	0.211	
4 1/4	169	0.243	
4 1/2	192	0.276	
4 3/4	217	0.312	6"
5	243	0.350	
5 1/4	270	0.389	
5 1/2	299	0.430	
5 3/4	327	0.471	
6	357	0.514	
6 1/4	387	0.558	8"
6 1/2	419	0.603	
6 3/4	451	0.649	
7	483	0.696	
7 1/4	517	0.744	
7 1/2	551	0.794	
7 3/4	587	0.845	10"
8	622	0.896	
8 1/4	659	0.949	
8 1/2	697	1.003	
8 3/4	734	1.057	
9	773	1.113	

Disclaimer:
Ed Euyen, Civil Engineer, P.E. No. 33955, California developed this sanitary sewer overflow table, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

Determining Overflow Rates From a Manhole:
Flow From a Manhole with Cover Removed Tables

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one-inch (1") height will be approximately 660 gallons per minute.

FLOW OUT OF MH WITH COVER REMOVED (TABLE 2)



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

FG 6.3 side B

Determining Overflow Rates From a Manhole:
Flow From a Manhole with Cover Removed Tables

24" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	28	0.04	
1/4	62	0.09	
3/8	111	0.16	
1/2	160	0.23	
5/8	215	0.31	6"
3/4	354	0.51	8"
7/8	569	0.82	10"
1	799	1.15	12"
1 1/8	1,0355	1.49	
1 1/4	1,340	1.93	15"
1 3/8	1,660	2.39	
1 1/2	1,986	2.86	18"
1 5/8	2,396	3.45	18"
1 3/4	2,799	4.03	
1 7/8	3,132	4.51	
2	3,444	4.96	21"
2 1/8	3,750	5.4	
2 1/4	3,986	5.74	
2 3/8	4,215	6.07	
2 1/2	4,437	6.39	
2 5/8	4,569	6.58	24"
2 3/4	4,687	6.75	
2 7/8	4,799	6.91	
3	4,910	7.07	

36" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	49	0.07	
1/4	111	0.16	
3/8	187	0.27	6"
1/2	271	0.39	
5/8	361	0.52	8"
3/4	458	0.66	
7/8	556	0.8	10"
1	660	0.95	12"
1 1/8	1,035	1.49	
1 1/4	1,486	2.14	15"
1 3/8	1,951	2.81	
1 1/2	2,424	3.49	18"
1 5/8	2,903	4.18	
1 3/4	3,382	4.87	
1 7/8	3,917	5.64	21"
2	4,458	6.42	
2 1/8	5,000	7.2	24"
2 1/4	5,556	8	
2 3/8	6,118	8.81	
2 1/2	6,764	9.74	
2 5/8	7,403	10.66	
2 3/4	7,972	11.48	30"
2 7/8	8,521	12.27	
3	9,062	13.05	
3 1/8	9,604	13.83	
3 1/4	10,139	14.6	
3 3/8	10,625	15.3	36"
3 1/2	11,097	15.98	
3 5/8	11,589	16.66	
3 3/4	12,035	17.33	
3 7/8	12,486	17.98	
4	12,861	18.52	
4 1/8	13,076	18.83	
4 1/4	13,285	19.13	
4 3/8	13,486	19.42	

Disclaimer:

Ed Euyen, Civil Engineer, P.E. No. 33955, California developed this sanitary sewer overflow table, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

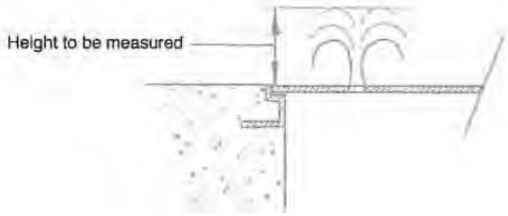
Determining Overflow Rates From a Manhole:
Flow From a Manhole Pick Hole Tables

The formula used to develop Table 3 is Q=CcVA, where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.[2] If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3"). This will produce an SSO flow of approximately 4.7 gallons per minute.

FLOW OUT OF VENT OR PICK HOLE (TABLE 3)



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

SSO/Backup Response Plan

FG 6.4 side B

Determining Overflow Rates From a Manhole:
Flow From a Manhole Pick Hole Tables

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
1/8	1.0
1/4	1.4
3/8	1.7
1/2	1.9
5/8	2.2
3/4	2.4
7/8	2.6
1	2.7
1 1/8	2.9
1 1/4	3.1
1 3/8	3.2
1 1/2	3.4
1 5/8	3.5
1 3/4	3.6
1 7/8	3.7
2	3.9
2 1/8	4.0
2 1/4	4.1
2 3/8	4.2
2 1/2	4.3
2 5/8	4.4
2 3/4	4.5
2 7/8	4.6
3	4.7
3 1/8	4.8
3 1/4	4.9
3 3/8	5.0
3 1/2	5.1
3 5/8	5.2
3 3/4	5.3
3 7/8	5.4
4	5.5
4 1/8	5.6
4 1/4	5.6
4 3/8	5.7
4 1/2	5.8
4 5/8	5.9
4 3/4	6.0
4 7/8	6.0
5	6.1

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm	
5 1/8 5 1/4	6.2 6.3	
5 3/8	6.3	
5 1/2	6.4	
5 5/8	6.5	
5 3/4	6.6	
5 7/8	6.6	
6	6.7	
6 1/8	6.8	
6 1/4	6.8	
6 3/8	6.9	
6 1/2	7.0	Unrestrained M/H cover will start to lift
6 5/8	7.0	
6 3/4	7.1	
6 7/8	7.2	
7	7.2	
7 1/8	7.3	
7 1/4	7.4	
7 3/8	7.4	
7 1/2	7.5	
7 5/8	7.6	
7 3/4	7.6	
7 7/8	7.7	
8	7.7	
8 1/8	7.8	
8 1/4	7.9	
8 3/8	7.9	
8 1/2	8.0	
8 5/8	8.0	
8 3/4	8.1	
8 7/8	8.1	
9	8.2	
9 1/8	8.3	
9 1/4	8.3 -	
9 3/8	8.4	
9 1/2	8.4	
9 5/8	8.5	
9 3/4	8.5	
9 7/8	8.6	
10	8.7	

Note: This chart is based on a 7/8-inch diameter pick hole

Disclaimer: Ed Euyen, Civil Engineer, P.E. No. 33955, California developed this sanitary sewer overflow table, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

Sewer Overflow Response Tactics Guide

The following is intended to be used a guide for generating ideas in how to respond to sewer overflows resulting from a variety of causes. Please bear in mind that each indicated response tactic may not be appropriate for a given sewer overflow. Always choose the tactic that best meets the circumstances at the time and the resources available. Protection of employee, public and environmental health should always be the top consideration when responding to a sewer overflow, regardless of its cause.

If you encounter an SSO due to:	These are the recommended solutions you should consider											
	Hydro-Jetter	Rodder	Vacuum Truck	TV Van*	Backhoe **	Hand Tools	By-Pass Piping	By - Pass Pumping	Manhole Entry***	Storage Tanks or Set Up Ponds	USA Request**	Backup Generators
Capacity due to gradient			■				■	■		■		
Capacity due to undersized line			■				■	■		■		
Capacity due to surcharged system										■		
Collapse	■	■	■		■		■	■			■	
Debris in Manhole			■			■			■			
Debris in line	■	■	■	■								
Grease	■	■	■	■								
Misc. blockage	■	■	■	■			■	■				
Roots	■	■	■	■			■	■				
Pump Station Failure								■				■
Power Failure								■				■

* CCTV operations may be required for this particular task.
** USA Services MUST be contacted prior to start of excavation! (1-800-227-2600)
*** Confined space entry procedures MUST be followed!

7. Fats, Oils, and Grease Control Program

7 Fats, Oils, and Grease (FOG) Control Program

The following subsections describe the City's ongoing efforts to control FOG.

7.1 Identification & Sewer Cleaning

During routine sewer cleaning, the City has identified areas or line segments of the wastewater collection system that are subject to grease stoppages and have established a prioritized cleaning schedule for each area. These "hot spots" require more frequent cleaning and further control of FOG sources. Areas with previous SSOs caused by grease or roots are reviewed more frequently to prevent re-occurrence and routine maintenance is conducted bi-monthly.

7.2 Source Control

The City has developed source control activities for educating local businesses about FOG control. New businesses are given a package of materials upon opening their business (see Attachments to this chapter). Additionally, restaurants are required to maintain a log book of grease trap cleaning and are notified that the City may inspect their establishment at any time. Annual mailers are sent to restaurants reminding them of their requirements and of good operating practices (see attached, "A Guide for Food Service Facilities" available in English and Spanish). The City also posts pollution prevention information online at https://whttps://www.cityofsthelena.org/publicworks/page/pollution-prevention-illicit-discharge.

7.3 Facility Inspection

All restaurants and food establishments are subjected to an annual Health, FOG, Stormwater inspection performed by the Napa County Department of Environmental Management. At the time of inspection, facilities are given FOG control brochures as well as a list of grease disposal companies for Napa County.

In addition to the annual inspection by County, the City conducts an inspection after any FOG-related SSO or if field crews witness improperly stored or spilled materials (usually in the back of the restaurants). During these inspections, restaurant staff are educated on FOG and asked to post educational materials around sinks and trash areas. Follow up inspections are conducted to ensure changes are implemented. A limited number of random inspections are conducted each year, when workload constraints allow.

7.4 Legal Authority

The City requires businesses to install and maintain a grease removal device (grease trap, interceptor or vault) depending on the type of food service business (restaurants, bakeries, etc.) to collect grease as part of this program. The City has a subsection on grease trap requirements in its municipal code, which is also included as an attachment to this chapter.

7. Fats, Oils, and Grease Control Program

Attachments

Grease Trap Ordinance

Title 13 PUBLIC SERVICES
Chapter 13.24 WASTEWATER DISCHARGE
13.24.100 Greasetraps.

A. All restaurants and food preparation businesses producing discharges of wastewater that at any time exceed the limitations of Section 13.24.030(H)(2) shall install and maintain in good operating condition at all times a greasetrap or grease interceptor sufficient to process all wastewater containing grease or oil produced or occurring on the premises, and all wastewater containing grease or oil shall be processed through said greasetrap prior to any discharge thereof into the community sewers.

B. All greasetraps or grease interceptors installed and maintained pursuant to subsection A of this section shall conform to the approved designs and specifications maintained on file by the public works director or shall conform to the Uniform Plumbing Code and be approved in design and specifications by the public works director.

C. All restaurants and food preparation businesses existing on the effective date hereof, which are required by subsection A of this section to install a greasetrap or grease interceptor shall complete installation of the same within sixty (60) days after the effective date hereof. All restaurants and food preparation services required to comply with subsection A of this section which are established after the effective date hereof shall complete installation of the required greasetrap or grease interceptor prior to opening for business.

D. All parties maintaining a greasetrap or grease interceptor shall maintain the same in good operating condition and shall clean and dispose of the accumulated waste as frequently as is necessary to maintain proper operating conditions. None of the waste materials cleaned from any such wastetrap or waste interceptor shall be disposed of into any city storm drain or sewer manhole nor in any other manner which constitutes a public or private nuisance. Violations of this subsection shall constitute an infraction.

E. The city’s public works director and any Napa County environmental health personnel acting under his or her directions may enter any restaurant or food preparation business premises where any such greasetrap or grease interceptor is required to be maintained to inspect such devices periodically or whenever deemed necessary to ascertain whether all requirements of this section are being complied with. (Prior code § 12.19)

FOG Outreach Materials

Help Prevent Pollution:
A Guide for Food Service Facilities

Pollution Prevention

Clean and healthy creeks, rivers, and bays are important to the City of St. Helena. However, allowing debris from your business to enter the gutter and storm drains can lead to water pollution. Storm drains carry rainwater from our streets, and should never contain wash water, trash, grease or other materials. Unlike substances that enter the sanitary sewers (from sinks and toilets), substances that enter the storm drains do not receive treatment before entering our waterways. In addition, blocked sewer lines can cause raw sewage to back up into kitchens, bathrooms, city streets, storm drains, and our waterways.

This brochure will explain steps your food establishment can take to help preserve water quality by keeping debris out of storm drains and by preventing fats, oils, and grease from blocking sewer lines.

Use Grease Interceptors To Capture Fats, Oils, and Grease (FOG).



Cleaning Spills and Equipment

- Never hose a spill into a gutter, street or storm drain!
- Before mopping a wet kitchen spill, absorb it with towels, cat litter or other absorbent materials.
- Sweep up dry spills immediately and dispose of the material in the trash.
- Scrape grease and food waste from floor mats and filters before cleaning. Dispose of scrapings in trash.
- After scraping, clean floor mats, filters, and garbage cans in a mop, sink or a designated, curbed area connected to the sanitary sewer. Consider using a cleaning service for these activities.

Absorb Wet Spills With Cat Litter Or Towels; Discard In The Trash



Dumpster/Grease Bin Area Cleaning

- Keep the area around the dumpster clear of trash and other debris. Do not overfill the dumpster.
- Cover dumpsters to block insects, animals, rainwater and wind.
- Sweep or vacuum up trash and throw it away.
- Absorb wet spills with cat litter, towels or similar materials. Discard in the trash.
- Do not rinse your dumpster area! Doing so can cause grease and trash to enter the storm drains.
- Have leaky dumpsters replaced.

Use Janitorial Mop Sinks For Cleaning Mops, Towels, And Floor Mats.

Prevent Fats, Oils, and Grease from Blocking the Sewers

Fats, oils, and grease (FOG) can cause sewer line blockages which can make sewage overflow into your facility and into storm drains that lead to the Napa River. To stop the substances from building up in sewer lines, prevent them from entering your drains.



Photo Courtesy of the Monterey Regional Water Pollution Control Agency.

Practices in the Kitchen



- Collect waste cooking oil and grease in portable containers with lids. Transfer into drums or barrels for recycling.
- Do not pour oil or grease down any drain. Recycle or use absorbent materials and dispose of waste in the trash.
- Dry-wipe pots, pans, dishware, and work areas to remove all visible grease before washing. Dispose of waste in the trash.
- Use drain screens to capture food waste and dispose of properly into the trash.
- Train employees about proper grease disposal and post "NO GREASE" signs near all sinks or drains.

Maintenance of Grease Traps and Interceptors

- Reduce solids going to the grease trap or interceptor.
- Inspect and clean grease traps frequently to ensure proper operation.
- Have a licensed company inspect and pump out grease interceptors regularly to ensure proper operation.
- Keep maintenance records on-site for reference and regulatory review.

For more information, call the City of St. Helena Department of Public Works at (707) 968-2658

For emergencies call 911.



St. Helena Pollution Prevention Program

In cooperation with The Napa County Storm Water Management Program

Eliminación de residuos

- Inspeccione periódicamente los contenedores de basura y los compactadores para asegurar que no tengan fugas. Si tienen fugas, llame a la empresa de arrendamiento para que los repare o los reemplace.
- Cubra los contenedores y otros receptáculos de basura para evitar que el agua de lluvia caiga dentro.
- Nunca arroje productos de desecho o desperdicios, como los de alimentos o líquidos, a los desagües de aguas pluviales. Done los alimentos en buen estado a un banco de alimentos, participe en programas de realización de abono compuesto con desperdicios de alimentos, comuníquese con una empresa de alimentación de animales o elimine los residuos de alimentos en un receptáculo para basura.
- Nunca lave con manguera los contenedores de basura ni las áreas en que estos se encuentran. Si es necesario limpiar un contenedor de basura, comuníquese con la empresa de arrendamiento de los contenedores. Use métodos de limpieza en seco para lavar el área en que se encuentran los contenedores de basura o bien realice otras Prácticas de mejor manejo (Best Management Practices – BMPs, en inglés) para limpiar el área en que estos se encuentran para evitar que el agua usada para la limpieza fluya hacia el sistema de drenaje de aguas pluviales.
- Es ilegal manipular o desechar inapropiadamente cualquier producto que pueda fluir hacia un drenaje de aguas. Tanto la empresa como las personas responsables de esto están sujetas a enjuiciamiento civil y criminal.



St. Helena Pollution Prevention Program

In cooperation with The Napa County Storm Water Management Program

Tratamiento y almacenamiento de grasas

- No vierta aceite de cocina ni grasa para cocinar en fregaderos ni en desaguaderos ubicados en el piso; tampoco los vierta en estacionamientos, en drenajes de aguas pluviales o en la calle.
- Elimine o recicle el aceite de cocina y la grasa para cocinar por medio de un transportista de desperdicios de grasas autorizado o de una agencia de reciclado de grasas autorizado. Busque transportistas y agencias de reciclado de grasas en las Páginas Amarillas bajo el nombre de "tallow" (sebo o grasa animal).
- Realice un mantenimiento de los interceptores de aceites y grasas al menos una vez al mes. Para que los interceptores de aceites y grasas funcionen correctamente, no deben contener más de 1/3 de su capacidad de capa de grasa flotante ni más de 1/4 de su capacidad de sedimento en el fondo (www.oracwa.org).
- Debe realizarse un mantenimiento semanal de los colectores de grasa instalados bajo los fregaderos. Será necesario mantenerlos con más frecuencia si la grasa sobrepasa el 50% de capacidad del colector (www.oracwa.org).
- Límpielos en seco. Use rascadores para quitar los desperdicios de alimentos de la vajilla, las ollas, las sartenes, las parrillas y las superficies para cocinar antes de limpiarlas con agua. Deseche los desperdicios de alimentos en un receptáculo para basura, envíelos a una empresa de alimentación de animales o done las sobras de alimentos en buen estado a un banco de alimentos.
- Coloque papel para alimentos para absorber el aceite y la grasa bajo los canastos de las sartenes. Deseche el papel engrasado en un receptáculo para basura.
- Es ilegal manipular o desechar inapropiadamente cualquier producto que pueda fluir hacia un drenaje de aguas. Tanto la empresa como las personas responsables de esto están sujetas a enjuiciamiento civil y criminal.



St. Helena Pollution Prevention Program

In cooperation with The Napa County Storm Water Management Program

Limpieza de pisos y pavimentos

- Mantenga limpias las áreas de estacionamientos, de accesos para coches y de contenedores de basura y retire los desechos acumulados. Use métodos de limpieza en seco para los derrames: por ejemplo, barra en vez de lavar con agua; use trapos, piedras sanitarias para gatos u otro tipo de materiales absorbentes; coloque la basura y los desechos sólidos en contenedores de basura. Si limpia un derrame con un trapeador, deseche el agua que usó para lavar el trapeador en fregaderos interiores para limpieza o en fregaderos exclusivos para trapeadores.

- No limpie el pavimento ni ningún área exterior con manguera para evitar que este agua fluya hacia el drenaje de aguas. Use un limpiador de superficies certificado por BASMAA (www.city.paloalto.ca.us/cleanbay/cbb.html) para lavar aceras, áreas de acceso para coches y estacionamientos. Sus empleados y su contratista deben hacer uso de las BMPs para evitar que el agua utilizada para lavar fluya hacia el sistema de drenaje de aguas pluviales.

- Nunca vierta ni barra aguas residuales provenientes de pisos de restaurantes por la puerta trasera o hacia una canaleta, un drenaje de aguas pluviales o un riachuelo. Deseche el agua que usó para lavar el trapeador en fregaderos interiores para limpieza o en retretes.

- Es ilegal manipular o desechar inapropiadamente cualquier producto que pueda fluir hacia un drenaje de aguas. Tanto la empresa como las personas responsables de esto están sujetas a enjuiciamiento civil y criminal.



St. Helena Pollution Prevention Program

In cooperation with The Napa County Storm Water Management Program

Limpieza de equipos

- Limpie alfombras, filtros para grasa, tarros de basura y otros equipos de restaurante en un fregadero para limpieza, un drenaje para pisos interior u otras áreas de lavado designadas cuyas aguas fluyan hacia el sistema de alcantarillado sanitario. Hable con la agencia local de alcantarillado sanitario para conocer los requisitos. El agua usada para lavar los equipos no debe fluir hacia el sistema de drenaje de aguas pluviales.

- Si el restaurante hace limpiar las alfombras, las campanas de ventilación o cualquier otro equipo por un contratista, asegúrese de que el agua utilizada para lavar no fluya hacia el sistema de drenaje de aguas pluviales. El restaurante es responsable de las acciones del contratista.

- Verifique el buen funcionamiento de los ventiladores de extracción y las chimeneas de ventilación ubicados en el techo al menos una vez por semana. Coloque una bandeja de recolección de aceite bajo los recubrimientos de los ventiladores de extracción ubicados en el techo para recolectar el aceite de cocina y la grasa; vacíe semanalmente las bandejas

- No limpie los equipos en fregaderos que se usan para la preparación de alimentos.

- Es ilegal manipular o desechar inapropiadamente cualquier producto que pueda fluir hacia un drenaje de aguas. Tanto la empresa como las personas responsables de esto están sujetas a enjuiciamiento civil y criminal.



Grease Blockage in sewer pipe.

Prevent Fats, Oils, and Grease from Blocking the Sewer

Fats, oils, and grease (FOG) can cause sewer line blockages into your facility and into storm drains that lead to the Napa River. To stop the substances from building up in sewer lines, prevent them from entering your drains.

Kitchen Practices

- Collect waste cooking oil and grease in portable containers with lids. Transfer into drums or barrels for recycling



- Do not pour oil or grease down any drain. Recycle or use absorbent materials and dispose of waste in trash.
- Dry-wipe pots, pans, dishware, and work areas to remove all visible grease before washing. Dispose of waste in the trash.
- Use drain screens to capture food waste and dispose if properly into the trash.
- Train employees about proper grease disposal and post "NO GREASE" signs near all sinks or drains.

Illustrations courtesy of the City of Los Angeles and Orange County. Photo courtesy of the Monterey Regional Water Pollution Control Agency.

Maintenance of Grease Traps and Interceptors

- Reduce solids going to the grease trap or interceptor.
- Inspect and clean grease traps frequently to ensure proper operation,
- Have a licensed company inspect and pump out grease interceptors regularly to ensure proper operation.
- Keep maintenance records on-site for reference and regulatory review.

For more information call:
Department of Public Works (707) 968-2658,
email us at: *publicworks@ci.st-helena.ca.us*
or visit us at *www.sthelenacity.com*

IN CASE OF EMERGENCY CALL 911

PROTECTING WATER QUALITY

A GUIDE FOR GREATER ST. HELENA'S FOOD SERVICE FACILITIES



Only Rain Down The Drain!

POLLUTION PREVENTION

Clean and healthy creeks, rivers, and bays are important to the City of St. Helena. However, allowing debris from your business to enter the gutter and storm drains can lead to water pollution. Storm drains carry rainwater from our streets, and should never contain wash water, trash, grease or other materials. Unlike substances that enter the sanitary sewers (from sinks and toilets), substances that enter the storm drains do not receive treatment before entering our waterways. In addition, blocked sewer lines can cause raw sewage to back up into kitchens, bathrooms, city streets, storm drains, and our waterways.

Capture Fats, Oils and Grease (FOG) and Recycle or Dispose of as Solid Waste



Cleaning Spills and Equipment



- **Never hose a spill into a gutter, street, or storm drain!**
- Before mopping a wet kitchen spill, absorb it with towels, cat litter or other absorbent materials.

Absorb Spills with Cat Litter or Towels; Discard in the Trash

- Sweep up dry spills immediately and dispose of in the trash.
- Scrape grease and food waste from floor mats and filters before cleaning. Dispose of scrapings in trash.
- After scraping, clean floor mats, filters, and garbage cans in a mop sink or designated, curbed area connected to the sanitary sewer. Consider using a cleaning service for these activities.

Dumpster/Grease Bin Area Cleaning



- Keep the area around the dumpster clear of trash and other debris. Don't overfill the dumpster.
- Cover dumpsters to block insects, animals, rainwater and wind.
- Sweep or vacuum up trash and throw it away.
- Absorb wet spills with cat litter, towels, or similar material. Discard in the trash.
- **Do Not Rinse Your Dumpster Area!** Doing so can cause grease and trash to enter the storm drains.
- Have leaky dumpsters replaced.

Use Janitorial Mop Sinks for Cleaning Mops, Towels and Floor Mats

Example of Poster given to new Food & Restaurant Establishments

Good Cleaning Practices

Food & Restaurant Industry



Clean floormats, filters and garbage cans in a mop sink, floor drain or proper outside area. Don't wash them in a parking lot, alley, sidewalk or street.

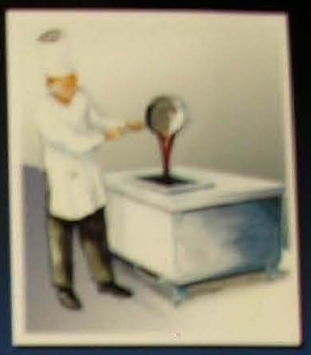
Limpie los tapetes de piso, los filtros y los botes de basura en un fregadero para trapeadores, desagüe de piso o en algún sitio apropiado afuera. No los lave en los estacionamientos, callejones, veredas o en la calle.





Pour washwater into a janitorial or mop sink. Don't pour it out onto a parking lot, alley, sidewalk or street.

Arroje el agua empleada en la limpieza al fregadero para trapeadores. No la arroje en los estacionamientos, callejones, veredas o en la calle.



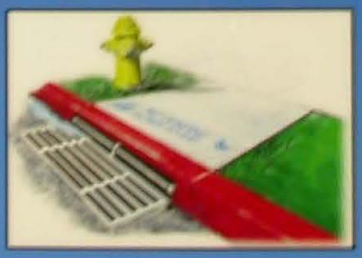
Recycle grease and oil. Don't pour it into sinks, floor drains, or onto a parking lot or street.

Reciele grasa y aceite. No los arroje en lavaderos o desagües de piso ni en estacionamientos o calles.



Keep dumpster area clean and lid closed. Don't fill it with liquid waste or hose it out.

Mantenga el área alrededor del basurero limpia y la tapa cerrada. No lo llene con desperdicios líquidos ni utilice la manguera.





Use dry methods for spill cleanup (sweeping, cat litter, etc.) Don't hose down spills.

Use métodos secos para limpiar los derrames (escobas, arena de los gatos, etc.). No utilice mangueras para limpiar los derrames.

For a

CLEANER NAPA RIVER

Only Rain Down the Drain!



Grease Disposal Companies for Napa County

Compañías de Eliminación de Grasa para el Condado de Napa

SEPTIC HAULER	CONTACTS	CLEANS VAULTS	CLEANS TRAPS	PROVIDE & CLEANS TALLOW BINS	PHONE #
DARLING INTERNATIONAL		Yes	No	Yes	800-473-4890
DEPENDABLE SEPTIC SYSTEMS	Renee Bauman	Yes	Yes	No	707-257-2127
					707-963-4161
ROTO ROOTER	Robert Cortez	Yes	No	No	707-224-2433
					707-963-7934
SACRAMENTO RENDERING COMPANY (SRC)	Travis/Jim Walsh	Yes	Yes	Yes	800-772-8727
WINE COUNTRY SANITARY	John Morovich	Yes	No	No	707-996-4331

Note: This is only a partial list. For further information , consult the local phone book or on-line at: www.ciwmb.ca.gov/foodwaste/render.htm#Solano.
The City of St. Helena is providing this list for your reference and does not endorse any companies.

FOG Inspection Materials

RESTAURANT INSPECTION OUTLINE

- Bring supplies to inspection
- Begin inspections in “hot spot” areas
- Introduce yourself and give Fats, Oils, And Grease Best Management Practices brochure
- Complete every item on the inspection report (with n/a if an item is not applicable to facility)
- Check for the presence of floor drains
- Check for screening devices in sinks
- Discuss limited use of under-the-sink garbage disposal units to reduce solids to sewer
- Check for an automatic dishwasher. Make sure the dishwasher bypasses the grease trap
- Make sure the dishwasher water goes through the outside grease vault.
- Check for a pre-wash sink
- Ask if any acids, enzymes, emulsifiers, or solvents are being use – they are prohibited
- Inquire if bacterial cultures are used for grease treatment
- Encourage employees to scrape food and grease off pots, pans, plates and cooking utensils
- Encourage employees to wipe utensils with paper towels any excess fats, oil and grease
- Discard food scraps, FOG, and paper towels in solid waste receptacle.
- Discard grill-cleaning residuals in grease storage container or solid waste bin
- Check for the type, size, and condition of all FOG removal devices
- Inspect vault and/or trap
- Inspect tallow or grease storage area
- Inspect rendering bin outside for fryer oil disposal
- Observe housekeeping practices for storm discharge consideration
- Document the name of the rendering firm. Check for manifests.
- Check floor mats, serving carts, or any other equipment, cleaning procedures
- Inventory janitorial cleaners, chemicals and quantities on site
- Check that washwater is poured into a utility sink or curbed cleaning facility with a floor drain
- Document most recent FOG pick-up. Check cleaning schedule
- Record hauler company and name of hauler
- Require that vaults be completely pumped of its contents
- Do not endorse products, advice is acceptable
- Advise facility of random sampling for compliance verification.
- Discuss stormwater concerns
- Look for a cleanout or sampling port, sample if necessary or if facility is randomly chosen
- Require resampling if O&G exceedence
- Issue NOV if needed
- Set up compliance schedule, with milestones if needed
- Follow-up inspection whenever needed
- Discuss trap or vault installation if needed, City to inspect vault or trap after installation
- Record inspections in database and/or excel file

City of St. Helena
Food Service Grease Trap
Inspection Form

❑ PASS

❑ FAIL

Inspector's Name:	
Date:	

Business Name:	*Manager's Name:*
Business Location:	*Business Phone #:*

Please Circle the correct response for all YES or NO questions.

1. Business Facility sewer is connected to City Sewer System?	YES	NO
2. Grease Trap Installed?	YES	NO
3. Type of Grease Trap Installed? (circle the type)	Below Ground	Under Sink
4. Provide the estimated volume of the Grease Trap measured in gallons:		
5. Provide the estimated level of floating grease inside trap/interceptor (inches)		
6. On what date was the trap/interceptor last cleaned?		
7. Do you include any additives to the traps?	YES	NO
8. If you do add additives, what kind?		
9. Is there a food grinder?	YES	NO
10. Does the food grinder discharge into the grease trap?	YES	NO
11. Is there an automatic dishwasher?	YES	NO
12. Does the automatic dishwasher discharge into the grease trap?	YES	NO
13. How are mats washed?		
14. Do mat washing liquids discharge into the sanitary drain or storm drain?		
15. Is there another language besides English used by staff? What is it?		

Recommendations Made:

❑ Follow-up Inspection required
❑ BMP Fact Sheets provided

Inspector's Signature: _____ *Manager's Signature:* _____ *Date Signed:* _____

NOTE: Grease traps ≤100# with 3 inches or more of grease and/or solids is a violation.
Grease interceptors >100# with 12 inches or more of grease and/or solids on the inlet side is a violation.

LOCATION	NAME	MAILING ADDRESS			PHONE
1026 HUNT AVE	STORES INC 762, SAFEWAY	AP EXPENSE	PO BOX 29097	PHOENIX, AZ 85038	(510)770-2571
1115 MAIN ST	FOODS, SUNSHINE	DALE SMITH	1115 MAIN ST	ST. HELENA, CA 94574	( ) -
1016 MAIN ST	PIZZERIA TRA VIGNE	1074 CALEDONIA ST.	SUITE E	SAUSALITO, CA 94965	(707)967-9999
1400 OAK AVE	COFFEE ROASTING CO., NV	1400 OAK AVE		ST HELENA, CA 94574	( ) -
1234 MAIN ST	PROPERTIES, PAPALE	PO BOX 527		ST. HELENA, CA 94574	( ) -
1310 MAIN ST	COOK ST. HELENA	1310 MAIN ST		ST. HELENA, CA 94574	(707)963-7088
1304 MAIN ST	ASSOCIATES, J & M	ARMADILLOS	1304 MAIN ST	ST. HELENA, CA 94574	( ) -
1345 RAILROAD AVE	MUELLER, JOHN	C/O L. JENSEN	1344 ADAMS ST	ST HELENA,, CA 94574	(707)963-8473
1010 ADAMS ST	LA PRIMA PIZZA,	1010 ADAMS ST		ST. HELENA, CA 94574	(707)963-7909
1347 MAIN ST	MARKET ST. HELENA LLC	ATTN: DOUGLAS KEANE	1347 MAIN ST.	ST. HELENA, CA 94574	(707)963-3889
1313 MAIN ST	GILL, ED	1313 MAIN ST		ST. HELENA, CA 94574	(707)963-1788
1205 MAIN ST	CANTINA INC., ANA'S	1205 MAIN ST		ST. HELENA, CA 94574	(707)942-6313
1336-A OAK AVE	THE BIG DIPPER	ATTN: GREGORY WEIRES	1336A OAK AVE.	ST. HELENA, CA 94574	(707)963-2616
61 MAIN ST	RESTAURNT, GOLDEN HARVEST	61 MAIN ST		ST. HELENA, CA 94574	(707)967-9888
1327 RAILROAD AVE	MERIMONTE NV L.L.C.	1327 RAILROAD AVE		ST. HELENA, CA 94574	(707)963-8631
501 MAIN ST	KFC/A&W	PO BOX 1778	ATTN: WENDELL WAGSTAFF	HANFORD, CA 93232	(707)963-4333
1050 CHARTER OAK	VIGNE, TRA	ATTN: TIFFANY	107 CALEDONIA ST. SUITE E	SAUSALITO, CA 94965	(707)963-4444
1080 MAIN ST	NATURE SELECT FOODS	1080 MAIN ST		ST. HELENA, CA 94574	(707)967-8545
1355 MAIN ST	BAKERY, MODEL	1357 MAIN ST		ST. HELENA, CA 94574	( ) -
1308 MAIN ST	PROPERTIES, PAPALE	PO BOX 527		ST. HELENA, CA 94574	(707)963-1029
1309 MAIN ST	HOTEL, ST. HELENA	ELIZABETH MARTIN TRUST	1309 MAIN STREET	ST HELENA, CA 94574	(707)963-4388
201 MAIN ST	COUNTRY INN, VINEYARD	201 MAIN ST		ST HELENA,, CA 94574	(707)963-1000
1020 MAIN ST	ASSOC II, SULPHER CREEK	900 MEADOWOOD LANE		ST HELENA,, CA 94574	(707)967-9400
1 MAIN ST	HARVEST INN	1 MAIN ST		ST. HELENA, CA 94574	(707)963-9463
1515 MAIN ST	RUNNELLS, JOHN	1515 MAIN ST		ST. HELENA, CA 94574	(707)963-3003
1417 KEARNEY ST	KEEGAN, PAULETTE	1417 KEARNEY ST		ST. HELENA, CA 94574	(707)963-2238
995 ADAMS ST	DISCOVERYLAND	995 ADAMS ST.		ST. HELENA, CA 94574	(707)965-6232
1255 OAK AVE	SCHOOL, ST HELENA PARISH	1255 OAK ST		ST. HELENA, CA 94574	(707)963-4677
1325 ADAMS ST	ST HELENA ELEMENTARY	465 MAIN ST		ST. HELENA, CA 00001	(707)967-2703
1316 HILLVIEW PL	ROBERT LOUIS STEVENSON	465 MAIN ST		ST. HELENA, CA 00001	( ) -
1088 COLLEGE AVE	COLLEGE, NAPA VALLEY	2277 NAPA-VJO HWY.	ATTN: ACCOUNTS PAYABLE	NAPA, CA 94559	(707)253-3000
1701 GRAYSON AVE	ST HELENA PRIMARY SCHOOL	465 MAIN ST.		ST HELENA, CA 00001	( ) -
1425 OAK AVE	MONTESSORI FAMILY CNTR	1425 OAK AVENUE		ST. HELENA, CA 94574	( ) -
100 ST HELENA HY	WINERY, SUTTER HOME	PO BOX 248		ST. HELENA, CA 94574	( ) -
1000 MAIN ST	VINEYARDS, MERRYVALE	1000 MAIN STREET		ST. HELENA, CA 94574	(707)963-2225
1902 MADRONA ST	WINERY, SPOTTSWOODE	1902 MADRONA AVE.		ST. HELENA, CA 94574	(707)963-0134

8. System Evaluation and Capacity Assurance Plan

8 System Evaluation and Capacity Assurance Plan

8.1 Capacity Assessment

The City prepared the *Wastewater Treatment and Reclamation Plant Treatment Facilities Evaluation Update* in March 2015. This study reviewed current flow data, capacity, effluent quality, and growth projections in order to evaluate treatment capacity and effluent quality. The study concluded that the current plant capacity was adequate to meet future demands, and identified projects that would improve treatment efficiency and effluent quality. The City also performed a collection system analysis in the *City of St. Helena WWTRP Upgrades Project Summary* memorandum (March 23, 2006). This memorandum described the results of analyses conducted to evaluate current and future influent flows to the WWTRP, and the resulting capacity that would be required. The Integrated Utility Master Plan (April 2021) also depicts system capacity shortfall and a Capital Improvement Program strategy, subject to funding capacity.

The City's Capital Improvement Plan for Fiscal Years 2022/2023 through 2026/2027 includes pump station upgrades, replacement of existing lines to reduce inflow and infiltration, and improvements to the treatment plant (see detailed description of projects in Section 4.3).

8.2 System Evaluation and Capacity Assurance Plan

As noted above and in Section 4 (Operation and Maintenance), specific projects budgeted in the Capital Improvement Plan include installation of pipe liners, sealing of manholes, disconnection of existing building drains to reduce infiltration and inflow, replacement of existing lines, and improvements to the treatment plant.

9. Monitoring, Measurement, and Program Modifications

9 Monitoring, Measurement, and Program Modifications

The intention of this section is to monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audit as appropriate. One way to track the effectiveness of each SSMP element is to use performance indicators. Performance indicators will be used during the audit process to determine any deficiencies in the SSMP. Examples of performance indicators that will be used to assess the SSMP include:

- Number of SSOs over time
- Volume distribution of SSOs
- Volume of SSOs contained versus total volume
- SSOs by cause (roots, grease, debris, etc.)

Updates captured in Version 8 of the SSMP for each of the SSMP sections are summarized below.

1 Goals

The City of St. Helena's goals still include the proper management, operation, and maintenance of all parts of the wastewater collection system, adequate capacity to convey peak flows, minimizing frequency of SSOs, and mitigating the impact of SSOs.

2 Organization

The City's organization chart and roles have been updated to show the current roles and organization of the Public Works Department.

3 Legal Authority

The City's Sewer Service and Wastewater Discharge Ordinances demonstrate the City's legal authority to control infiltration and inflow (I/I) and to require proper construction, testing and inspection of their sewer system. No changes have been made to these ordinances since the last version of the SSMP. In January/February 2023, the City will be updating the Municipal Code to require that the responsibility of ongoing ownership and maintenance of sewer laterals (both on private property and within the public Right-of-Way) lie with property owners.

4 Operation and Maintenance Program

4.1 Collection System Map

A map of the City's collection system is maintained and updated periodically based on the Sewer System Supervisor's guidance. No updates were needed in Version 8 of the SSMP.

4.2 Prioritized Preventive Maintenance

This section was updated to confirm the City's policy of not using chemical root control.

4.3 Rehabilitation and Replacement

The section was revised to include information from the current CIP for years 2022/2023 to 2026/2027 and to note that the City's CIP priorities are informed by the recently-adopted IUMP The City has also raised its wastewater rate fees to fund these efforts.

4.4 Training

The Collection System Operation Team continues to participate in several trainings per year.

4.5 Contingency Equipment and Replacement Inventories

This section was revised to include recent equipment purchases since the time of the last SSMP update.

5 Design and Performance Provisions

5.1 Standards for Installation, Rehabilitation, and Repair

Section 6 of the City of St. Helena Water and Sewer Standards includes design criteria as that are periodically reviewed and updated as necessary. No updates have been made since the last version of the SSMP. A copy of the standards is no longer included in the SSMP. They are available online on the City's Public Works website.

5.2 Standards for Inspection and Testing of New and Rehabilitated Facilities

The information in this section is up to date. No revisions were needed for Version 8 of the SSMP.

6 Overflow Emergency Response Plan

The description of the City's Sewer Overflow Response Plan presented in Section 6 of the SSMP is up to date. The Plan itself (included as an SSMP attachment) was updated to include the new City Organization Chart.

7 Fats, Oils, and Grease (FOG) Control Program

The City continues to identify and clean sections of the sewer system that are subject to grease blockages. The City continues to distribute materials regarding source control activities to educate local businesses about FOG control. Random inspections and inspections upon notice of an issue continue to take place.

8 System Evaluation and Capacity Assurance Plan

8.1 Capacity Assessment

No updates were needed in Version 8 of the SSMP.

8.2 System Evaluation and Capacity Assurance Plan

The City continues to perform system-wide upgrades with tasks such as installation of pipe liners, sealing of manholes, and disconnection of existing building drains to reduce infiltration and inflow, replacement of existing lines, and improvements to the treatment plant.

10 SSMP Program Audits

The City completed an internal SSMP Audit in April 2014, May 2016, March 2019, and November 2022. This version of the SSMP (Version 8, updated January 2023) includes revisions based on the audit's recommendation.

11 Communication Program

This section is current and no revisions are needed at this time.

10. SSMP Audits

10 SSMP Program Audits

The City completes a review of the SSMP every two years, or more often as needed based on the number of overflows. The audit evaluates the SSMP effectiveness and identifies any deficiencies and steps to correct them. This current SSMP update (Version 8) includes recommendations from the most recent internal audit conducted in November 2022.

11. Communication Program

11 Communication Program

The City maintains a website (www.cityofsthelena.org) to inform the public about City activities. The City's website is an effective communication channel for providing alerts and news to the public. The main page of the website provides important announcements, public hearings notices, links to agendas and minutes for City Council meetings, and other key information for City residents. The SSMP is published on the Public Works Department page of the City website. The City will also use the website to notify the public of important upcoming activities related to sewer system management, its development, and implementation, and performance.

The City does not have any tributary or satellite collection systems; there is no need to establish communication protocols with any such agencies.

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **February 2023 Review and Forecasting of City Water Supply Availability**

CEQA Determination: **Exempt**

Prepared By: Ian Dale, Environmental Services Tech

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: April Mitts, Assistant City Manager

BACKGROUND

The City of St. Helena publishes a monthly water report on the City website (www.cityofsthelena.org/publicworks/page/water-reports). The report includes the amount of water produced at the Louis Stralla Water Treatment Plant and the Stonebridge Potable Water Wells, and potable water delivered from the City of Napa. In addition to presenting data on the amount delivered monthly, the report includes year-to-date information and prior year data. Water elevation and capacity at the Bell Canyon Reservoir is included as well as information on rain and temperatures.

At the City Council meeting of July 27, 2021, the City Council requested City staff enhance the monthly water report to include a forecast of available water supply, consistent with the adopted Urgency Ordinance. This request is consistent with the City's Fiscal Year 2021-22 Council Goal to develop a Comprehensive Water Security Framework, and the recently developed Framework that includes a goal to "Maximize Conservation During Water Emergency" and subtask 1C to "provide customers with comparison of actual vs. projected water demand" as well as Framework Goal Improve Consumer Satisfaction and Confidence" and subtask 3C to "additional analytical tools to improve consumer confidence."

DISCUSSION

City staff has developed a forecasting tool to facilitate its ability to optimize water use and track water availability. Included as Attachment 1 is the Monthly Water Report for February 2023. The water produced for February 2023 is down by -11% when compared to February 2022 and is down -24% compared to the average of February 2018-2020. Below is a chart summarizing the water produced per source:

Water Produced per Source

Source	Average (2018 - 2020) (Acre-Feet)	February 2022 (Acre-Feet)	February 2023 (Acre-Feet)
Bell Canyon	38	38	13
Stonebridge Wells	8	33	8
Napa Water	37	0	42
Total	**83**	**71**	**63**

Percent change from February 2022: -11**%**
Percent change from average of February 2019 - 2021: -24%

Bell Canyon Reservoir

The City is still in drought conditions. Bell Canyon Reservoir has adequate water to support the City's needs through this calendar year with Phase I conservation measures in effect. The storage in Bell Canyon graph (Attachment 2) has been revised to include historic reservoir supply levels since July 2021. It also shows the water availability forecast through June 2024 based on the highest water usage during a non-drought year (FY 2019/20) and 10 inches of rainfall (lowest recorded).

As of March 1, 2023, Bell Canyon Reservoir elevation was at 422.32 feet representing approximately 2,383.69 acre feet (AF) and 100% capacity. Bell Canyon spillway level is 422 feet representing 2,383.69 acre feet in water supply volume. Below is a chart comparing Bell Canyon elevation levels, water supply availability in acre feet, and percent capacity of the reservoir on March 1st in 2021, 2022, and 2023.

Year	**2021**	**2022**	**2023**
Bell Canyon Elevation Level	400.11 Ft.	419.40 Ft.	422.32 Ft.
Acre Feet	954 AF	2,187 AF	2,383 AF
Percent Capacity	40%	91.8%	100%

As a follow up to the May 24th City Council meeting, staff developed a graph (Attachment 3) highlighting the relationship between the reservoir elevation level and water supply availability in acre feet. The graph shows the current status of the reservoir. Furthermore, the graph also displays the points where City Council decided to implement Phase I and Phase II drought restrictions in 2020.

Continued Water Conservation

California experienced two consecutive dry years 2020 and 2021 and drought conditions state-wide persist. Due to the combination of warmer-than-average temperatures and

minimal precipitation in the state, the Department of Water Resources (DWR) declared 2021 as the fourth-driest year on record statewide. The record-breaking dry period in January and February 2022, and the absence of significant rains in March, have required DWR to reduce anticipated deliveries from the State Water Project (SWP). However, the reduction does not affect St. Helena as the City has multiple robust water sources not affected by the executive order. Water availability from the Bell Canyon reservoir is based on the City's State Water Rights permit and not the SWP. The City has not received any curtailment order from DWR nor does the City anticipate receiving one.

Due to the ongoing drought conditions, Phase I Water Emergency remains in effect, even though Bell Canyon Reservoir level is above the level when Council initially called for Phase I conservation. Staff will monitor State-wide and local drought conditions, weather conditions, and provide updates on a monthly basis.

City of Napa Water Supply

Normal operations continue at Rutherford Pump Station (RPS) and the City is taking delivery of the allotment purchased from City of Napa. During the month of February 2023, Rutherford Pump Station was producing an average of 0.493 MG/day for a total of 42.42 acre feet (AF) for the month.

FISCAL IMPACT

None

RECOMMENDED ACTION

Receive and File

ATTACHMENTS

MWR February 1-28 2023
Attachment 2 - Bell Canyon Water Storage Forecast
Attachment 3 - February Bell Canyon Reservoir Storage with Phase I II

CITY OF ST. HELENA
MONTHLY WATER REPORT

CC: CC __X__ PC__X__ FILE _____
RECEIVED: _____ BY: __

February 1-28, 2023

	LOUIS STRALLA WATER PLANT	STONEBRIDGE POTABLE WELLS	SBW IRRIGATION WATER	NAPA WATER	TK #1 & #2 ADJUST
AMOUNT PRODUCED in AF	13.11	8.80	0.00	42.42	-0.44
AMOUNT PRODUCED in MG	4.27	2.87	0.00	13.82	-0.14
PERCENT	**20.5%**	**13.8%**		**66.4%**	-0.7%

WATER PRODUCED ~~DELIVERY~~ (AGGREGATE)

	THIS YEAR	LAST YEAR
TOTAL PRODUCED THIS PERIOD	20.95 MG	24.33 MG
MAXIMUM DAILY PRODUCED	1.41 MG	1.56 MG
MINIMUM DAILY PRODUCED	0.00 MG	0.31 MG
AVERAGE DAILY PRODUCED	0.75 MG	0.84 MG

WATER YEAR TOTALS

	THIS FISCAL YEAR	%	LAST FISCAL YEAR	%
LOUIS STRALLA WATER PLANT	334.64 AF	38.2%	281.07 AF	32.7%
	94.60 MG		91.55 MG	
NAPA WATER	370.73 AF	42.3%	219.63 AF	25.6%
	120.76 MG		71.54 MG	
STONEBRIDGE POTABLE WELLS	170.67 AF	19.5%	357.65 AF	41.7%
	55.59 MG		116.50 MG	
TOTAL WATER PRODUCED ~~DELIVERY~~ (ALL)	**876.04 AF**	**100.0%**	**858.35 AF**	**100.0%**

SBW IRRIGATION WATER

	THIS MONTH	THIS MONTH, LAST YR.
STONEBRIDGE APARTMENTS	0.00 MG/Feb 1 -28	0.00 MG/Feb 1-28
NAPA VALLEY COLLEGE	0.00 MG/Feb 1 -28	0.00 MG/Feb 1-28

WATER ELEVATION, CAPACITY & RAINFALL

	THIS FISCAL YEAR	LAST FISCAL YEAR
ELEVATION BELL CANYON RESERVOIR	422.32 FT.	419.40 FT.
MONTHLY RISE OR DROP	0.55 FT.	-1.49 FT.
CAPACITY AT END OF PERIOD	2383.69 AF	2187.74 AF
PERCENT OF FULL CAPACITY	100.0 %	91.8 %
RAINFALL IN THIS PERIOD	4.29 IN	0.07 IN
TOTAL RAINFALL SEASON TO DATE	25.93 IN	23.43 IN

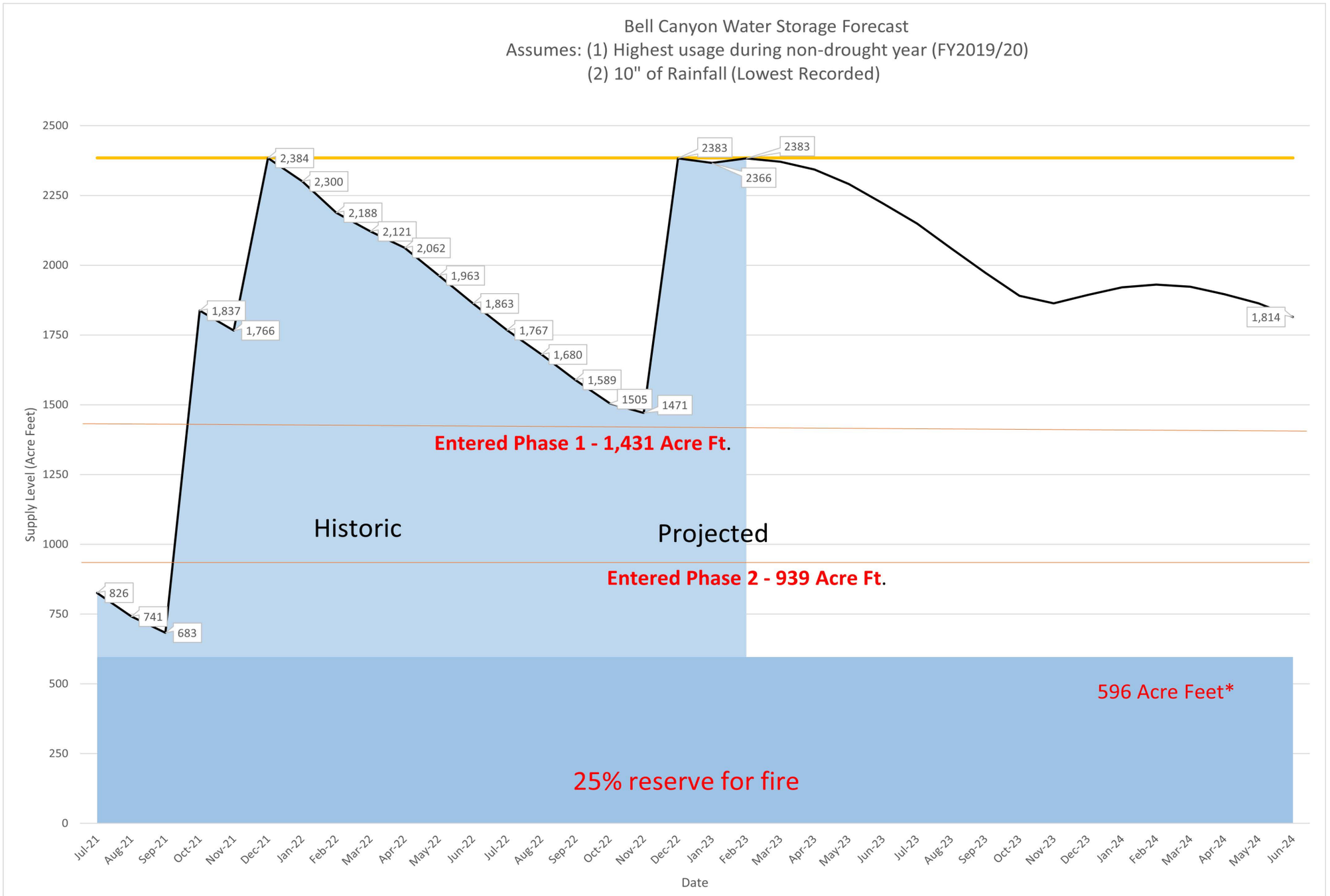
TEMPERATURES

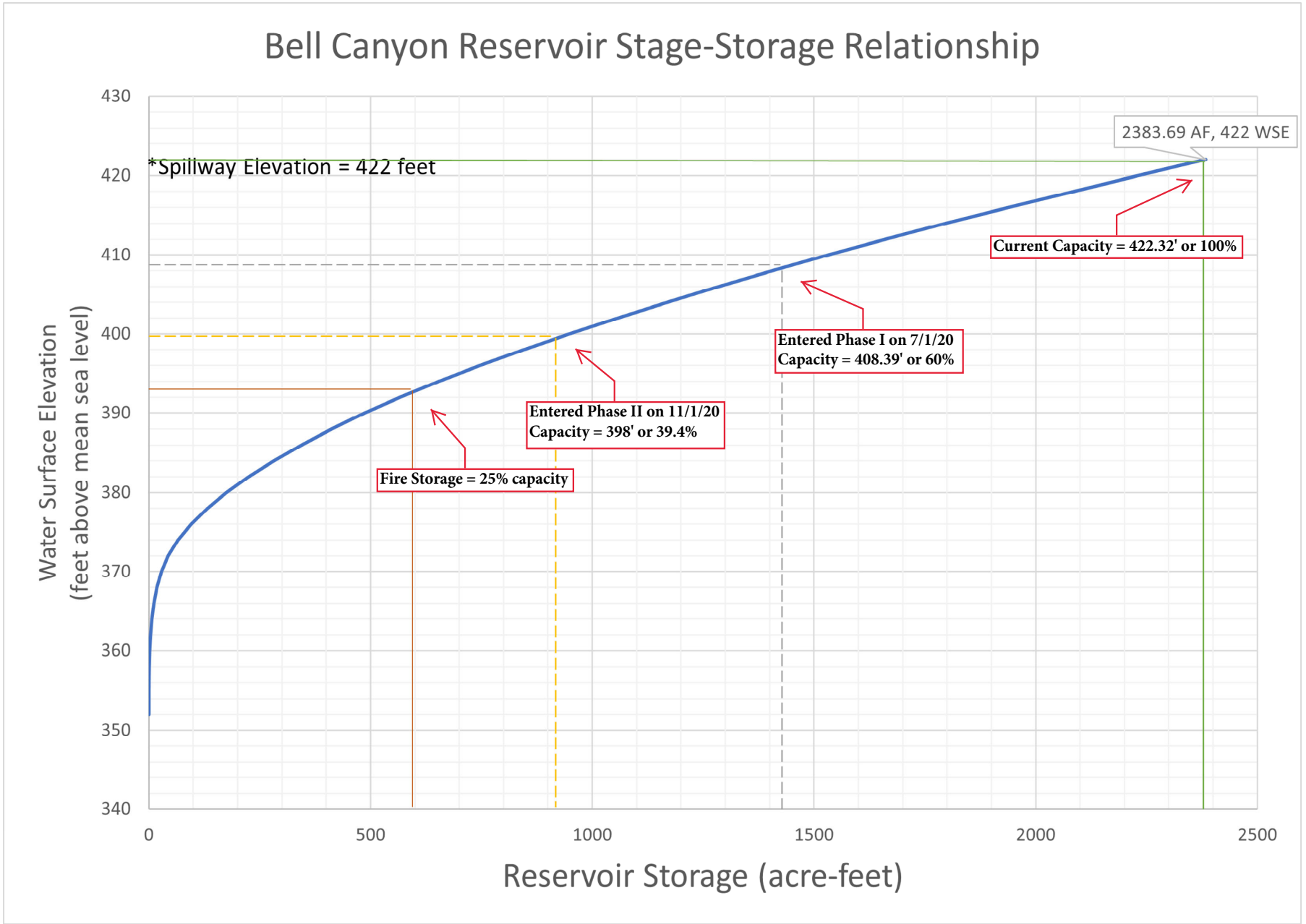
	THIS MONTH, THIS YEAR	THIS MONTH, LAST YR.
DEGREES IN FAHRENHEIT	34-72	32-79
AVERAGE	53	49

REMARKS

City of Napa Water Delivery: RPS producing an average of 0.493 MG/day during February 2023.

DISCLAIMER: The data presented in this report is approximate and for informational purposes only.
Updates will be provided if any errors are identified.


Bell Canyon Water Storage Forecast
Assumes: (1) Highest usage during non-drought year (FY2019/20)
(2) 10" of Rainfall (Lowest Recorded)
Supply Level (Acre Feet)
Date
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
826
741
683
1,837
1,766
2,384
2,300
2,188
2,121
2,062
1,963
1,863
1,767
1,680
1,589
1505
1471
2383
2366
2383
1,814
Entered Phase 1 - 1,431 Acre Ft.
Entered Phase 2 - 939 Acre Ft.
Historic
Projected
596 Acre Feet*
25% reserve for fire
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24


Bell Canyon Reservoir Stage-Storage Relationship
*Spillway Elevation = 422 feet
2383.69 AF, 422 WSE
Current Capacity = 422.32' or 100%
Entered Phase I on 7/1/20
Capacity = 408.39' or 60%
Entered Phase II on 11/1/20
Capacity = 398' or 39.4%
Fire Storage = 25% capacity
Water Surface Elevation
(feet above mean sea level)
430
420
410
400
390
380
370
360
350
340
0
500
1000
1500
2000
2500
Reservoir Storage (acre-feet)

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration and proposed adoption of a Resolution authorizing the City Manager to execute Amendment No. 1 to STH Contract: FY2023-001 in the amount of $25,000 to the Professional Services Agreement with Regional Government Services (RGS) for finance assistance for a total amount not-to-exceed $50,000.**

CEQA Determination: **Not a CEQA project**

Prepared By: Mandy Kellogg, Administrative Services Director

Reviewed By: April Mitts, Assistant City Manager

Approved By: Anil Comelo, City Manager

BACKGROUND

The City of St. Helena Finance Division of the Administrative Services Department handles the City's financial operations of the City, including management of all City funds and overseeing the internal financial operations of all departments. The Finance Division is responsible for numerous City financial matters, including preparing the annual budget, collecting business license and Transient Occupancy Tax revenue, accounts payable, payroll administration, and preparing annual financial statements.

On August 9, 2022, the City Manager executed a contract with Regional Government Services (RGS) for an amount not-to-exceed of $25,000 (Attachment 3) for RGS to provide finance assistance and assist with some immediate needs in the Finance Division as a result of the ongoing vacancies in the division.

DISCUSSION

RGS is a Joint Powers Authority (JPA) established in 2002 to provide organizational services to California public agencies. RGS has extensive experience in California public agencies and provide a variety of services. RGS works exclusively for the benefit of public

agencies, providing a ready source of support and consulting services to meet the needs of its partner agencies in a broad range of disciplines and to help local governments.

The City continues to face staffing shortages within the Finance Division and wishes to expand the scope of the Professional Services Agreement that was executed with RGS. RGS will provide immediate ongoing consulting services to facilitate timely completion of finance and accounting projects, including but not limited to:

- Bank Account Reconciliation
- Journal Entries
- Liability entries and reconciliations
- Grant reporting and cash withdrawals
- Professional expertise and outsourced finance services as requested by the City

Staff is recommending an amendment to the agreement for an additional $25,000, with a total contract amount not to exceed $50,000.

FISCAL IMPACT

The estimated fiscal impact of this contract amendment is $25,000 for a not-to-exceed amount of $50,000. Salary savings are being realized through the current vacant positions in the Administrative Services Department at approximately $16,145 per month. Based on the estimated timeframe to fill the vacancy it is estimated that the salary savings will be sufficient to offset the increased cost of the contract.

RECOMMENDED ACTION

Adopt the attached resolution.

ATTACHMENTS

Attachment 1: Resolution
Attachment 2: Amendment No. 1 RGS
Attachment 3: STH Contract FY2023-001 RGS

CITY OF ST. HELENA

RESOLUTION NO. 2023 -

Authorizing: (1) the City Manager to Execute Amendment No. 1 to STH Contract: FY2023-001 in the amount of $25,000 to the Professional Services Agreement with Regional Government Services (RGS) for finance assistance for a total amount not to exceed $50,000.

RECITALS

A. The City of St. Helena Finance Division of the Administrative Services Department handles the City's financial operations of the City, including management of all City funds and overseeing the internal financial operations of all departments; and

B. The Finance Division is responsible for numerous City financial matters, including preparing the annual budget, collecting business license and Transient Occupancy Tax revenue, accounts payable, payroll administration, and preparing annual financial statements: and

C. On August 9, 2022, the City of St. Helena and Regional Government Services (RGS) entered into an agreement for an amount not-to-exceed of $25,000 for RGS to provide finance assistance; and

D. The City continues to face staffing shortages within the Finance Division; and

E. RGS has demonstrated they have the necessary skills, abilities, and staff to help fulfill the ongoing needs of the Finance Division; and

F. The City of St. Helena and RGS now desire to execute an amendment to the agreement to expand the scope of the services provided.

RESOLUTION

NOW, THEREFORE, the City Council of the City of St. Helena resolves as follows:

1. Authorizes the City Manager to execute Amendment No. 1 to STH Contract: FY2023-001 in the amount of $25,000 to the Professional Services Agreement with Regional Government Services (RGS) for finance assistance for a total amount not to exceed $50,000.

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Dohring: _____
Vice Mayor Eric Hall: _____
Councilmember Anna Chouteau: _____
Councilmember Lester Hardy: _____
Councilmember Billy Summers: _____

APPROVED: ATTEST:

_____ _____
Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

AMENDMENT NO. 1
TO PROFESSIONAL SERVICES AGREEMENT WITH REGIONAL GOVERNMENT SERVICES (RGS): STH CONTRACT NO: 2023-001 FOR PROFESSIONAL SERVICES FOR FINANCE ASSISTANCE.

This Amendment No. 1 to Agreement for Professional services is made effective on March 28, 2023, by and between the City of St. Helena, a municipal corporation ("City"), and Regional Government Services (RGS) ("Consultant").

RECITALS

A. On August 9, 2022, the City of St. Helena and Regional Government Services (RGS) entered into an agreement for an amount not-to-exceed of $25,000 for RGS to provide finance assistance; and

B. The City of St. Helena desired to continue utilizing RGS for on-call finance assistance; and

C. The City continues to face staffing shortages within the Finance Division and wishes to expand the scope of the Professional Services Agreement that was executed with RGS; and

D. RGS has extensive experience in California public agencies and provide a variety of services; and

E. The City of St. Helena and Regional Government Services now desire to amend the Agreement for an additional $25,000 for a total not to exceed $50,000 to help facilitate timely completion of finance and accounting projects.

AGREEMENT

NOW, THEREFORE In consideration of the promises and the mutual covenants and agreements herein contained, for good and valuable consideration, the adequacy of which is hereby acknowledged, the parties agree to amend the Agreement as follows:

1. Section 4.A Compensation, is amended to read as follows:

   "Total compensation shall not exceed $50,000…"

All other terms of the Agreement shall remain in full force and effect.

Entered as of the day and year first above stated.

CONSULTANT:

Signatures of Authorized Persons:

By: _____

Print Name: _____

Title: _____

CITY OF ST. HELENA
a Municipal Corporation

By: _____
Anil Comelo, City Manager

APPROVED AS TO FORM:

_____
Ethan Walsh, City Attorney

ATTEST:

_____
City Clerk

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AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT, made and entered into on August 9, 2022 by and between the **CITY OF ST. HELENA**, located in the County of Napa, State of California (City), and **REGIONAL GOVERNMENT SERVICES AUTHORITY** (Consultant).

RECITALS:

A. City desires to employ Consultant to furnish professional services in connection with the project described as Human Resources Advisory Services.

B. Consultant has represented that Consultant has the necessary expertise, experience, and qualifications to perform the required duties.

NOW, THEREFORE, in consideration of the mutual premises, covenants, and conditions herein contained, the parties agree as follows:

SECTION 1 – BASIC SERVICES

Consultant agrees to perform the services set forth in **Exhibit A, "Scope of Services"** and made part of this Agreement.

SECTION 2 – ADDITIONAL SERVICES

Consultant shall not be compensated for any services rendered in connection with its performance of this Agreement that are in addition to or outside of those set forth in this Agreement or **Exhibit A, "Scope of Services"** (the "Services"), unless such additional Services and compensation are authorized in advance and in writing by the City Council or City Manager of the City.

SECTION 3 – TIME FOR COMPLETION

The time for completion of Services shall be as identified in **Exhibit A, "Scope of Services"**. The parties expressly agree that time is of the essence in the performance of this Agreement.

SECTION 4 – COMPENSATION AND METHOD OF PAYMENT

A. Subject to any limitations set forth in this Agreement, City agrees to pay consultant the amount specified in **Exhibit A** attached hereto and made a part hereof. Total compensation shall not exceed $25,000 unless additional compensation is approved in accordance with Section 2.

B. Consultant shall furnish to City an original invoice for all work performed and expenses incurred during the preceding month. The invoice shall detail charges by the following categories if applicable: labor (by sub-category), travel, materials, equipment, supplies, subconsultant contracts, and miscellaneous expenses. Each original invoice furnished shall include the expenses incurred during the preceding month, the cumulative Agreement amount, and the

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amount remaining on the Agreement. City shall independently review each invoice submitted to determine whether the work performed and expenses incurred are in compliance with the provisions of this Agreement. If no charges or expenses are disputed, the invoice shall be approved, and City will use its best efforts to cause Consultant to be paid within 30 days of receipt of invoice. If the City disputes any charges or expenses, the City will return the original invoice to Consultant for correction and resubmission. If the City reasonably determines, in its sole judgment, that the invoiced charges and expenses exceed the value of the Services performed to date and that it is probable that the Agreement will not be completed satisfactorily within the contract price, City may retain all or a portion of the invoiced charges and expenses. Within thirty (30) days of satisfactory completion of the project, City shall pay the retained amount, if any, to Consultant.

C. Payment to the Consultant for work performed pursuant to this Agreement shall not be deemed to waive any defects in work performed by Consultant.

SECTION 5 – STANDARD OF PERFORMANCE

A. Consultant represents and warrants that it has the qualifications, experience and facilities necessary to properly perform the Services required under this Agreement in a thorough, competent and professional manner. Consultant shall at all times faithfully, competently and to the best of its ability, experience and talent, perform all Services described herein. In meeting its obligations under this Agreement, Consultant shall employ, at a minimum, generally accepted standards and practices utilized by persons in the same or similar geographical area engaged in providing Services similar to those required of Consultant under this Agreement.

B. In order to induce City to enter into this Agreement, Consultant represents that it is duly organized, existing and in good standing under applicable state law; Consultant is licensed to perform all aspects of the Services; Consultant will employ only persons and Subconsultants with all required licenses and certifications; that Consultant is duly qualified to conduct business in the State; that Consultant has duly authorized the execution, delivery and performance of this Agreement and the Services to be performed herein; and that the Agreement does not violate or create a default under any instrument, agreement, order or decree binding on Consultant.

SECTION 6 – [Intentionally Omitted]

SECTION 7 – INSURANCE REQUIRED

Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, or employees, as indicated:

A. Minimum Scope of Insurance. Coverage shall be at least as broad as:
   1. Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001).
   2. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).
   3. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

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B. Minimum Limits of Insurance. Consultant shall maintain limits no less than:

1. General Liability: $1,000,000 per occurrence for bodily injury, personal injury and property damage including operations, products and completed operations, as applicable. If Commercial General Liability Insurance or other form with a General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: $1,000,000 per accident for bodily injury and property damage.
3. Employer's Liability: $1,000,000 per accident for bodily injury or disease.

C. Professional Liability Insurance. Consultant shall maintain at least $1,000,000 of professional liability insurance combined single limit for each occurrence, insuring against professional errors and omissions in the Services performed by Consultant under this Agreement, including, without limitation, claims for negligence, misrepresentation, violation of good faith and fair dealing, and inaccurate advise arising out of, resulting from, or in connection with Services performed by Consultant under this Agreement.

D. Excess Limits. If Consultant maintains higher limits than the minimums shown above, City requires and shall be entitled to coverage for the higher limits maintained by Consultant. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

E. Primary Coverage. For any claims related to this contract the Consultants insurance coverage shall be primary insurance as respects to City, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, or volunteers shall be excess of Consultant's insurance and shall not contribute with it.

F. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions of $25,000 or greater must be declared to and approved by the City.

G. Other Insurance Provisions. The commercial general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The City, its agent, officers, officials, employees, and volunteers are to be covered as additional insured as respects liability arising out of work or operations performed by the Consultant or Consultant's subconsultants; or automobile owned, leased, hired or borrowed by the Consultant.
2. For any claims related to Consultant's conduct while performing the work of this project, the Consultant's insurance coverage shall be primary insurance as respects the City, its agents, officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the City, its agents, officers, officials, employees or volunteers shall be excess of the Consultant's insurance and shall not contribute with it.
3. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be cancelled by either party, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

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4. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subsection (b) of Section 2782 of the Civil Code.

H. Waiver of Subrogation. Consultant's commercial general liability, automobile liability, workers' compensation, and employer's liability policies shall be endorsed with a waiver of subrogation. The insurance company, in its endorsement, agrees to waive all rights of subrogation against the City, its agents, officers, officials, employees and volunteers for losses paid under the terms of this policy which arises from the work performed by the named insured for the City.

I. The Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A: VII, unless otherwise acceptable to the City. Pursuant to California Government Code §990, as a public entity, Contractor may satisfy the coverage requirements set forth herein with a combination of self-insurance and self-insured pool insurance.

J. Verification of Coverage. Consultant shall furnish the City with original certificates and amendatory endorsements effecting coverage required by this clause. The endorsements should be on forms provided by the City or on forms that conform to City requirements. All certificates and endorsements are to be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by these specifications at any time.

SECTION 8 – INDEMNIFICATION

A. To the fullest extent allowed by law (including without limitation California Civil Code Sections 2782 and 2782.8), as may be applicable, Consultant shall indemnify, defend against third party claims, and hold harmless City, its agents, officers, officials, employees, representatives, and volunteers (collectively "Indemnitees") from any and all claims, demands, suits, loss, damages, injury, and/or liability (including any and all costs and expenses in connection therewith, including reasonable legal fees and expert witness costs) (collectively, "Liabilities"), to the extent incurred by reason of any negligent or otherwise wrongful act or omission of Consultant, its officers, agents, employees, subconsultants, and subcontractors, or any of them, under or in connection with this Agreement; and Consultant agrees at its own cost, expense and risk to defend any and all claims, actions, suits, or other legal proceedings brought or instituted against City, its agents, officers, officials, employees and volunteers, or any of them, to the extent arising out of, pertaining to, or relating to such negligent or otherwise wrongful act or omission, and to pay and satisfy any resulting judgments.

B. If any action or proceeding is brought against Indemnitees by reason of any of the matters against which Consultant has agreed to indemnify Indemnitees as provided above, Consultant, upon notice from City, shall defend Indemnitees at Consultant's expense by counsel acceptable to City, such acceptance not to be unreasonably withheld. Indemnitees need not have first paid for any of the matters to which Indemnitees are entitled to Indemnification in order to be so indemnified. The insurance required to be maintained by Consultant shall ensure Consultant's obligations under this section, but the limits of such insurance shall not limit the liability of Consultant hereunder. The provisions of this section shall survive the expiration or earlier termination of this Agreement.

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C. The provisions of this section do not apply to claims to the extent occurring as a result of the City's sole negligence, active negligence, or willful acts or misconduct.

D. Duty to Cooperate. Each party shall notify the other party immediately in writing of any claim or damage related to activities or Services performed under this Agreement. The parties shall cooperate with each other in the investigation and disposition of all Liabilities arising out of the activities or Services under this Agreement.

E. In the event that Consultant executes any subconsulting agreements in connection with the Services performed under this Agreement, Consultant shall place in all such subconsulting agreements, and cause its subconsultants to agree to, the indemnity and insurance obligations in favor of City and other Indemnitees, as provided herein, in the exact form and substance of those contained in this Agreement.

SECTION 9 – INDEPENDENT CONTRACTOR STATUS

A. Consultant is and shall at all times remain a wholly independent contractor and not an officer, employee or agent of City. Consultant shall have no authority to bind City in any manner or to incur an obligation, debt or liability of any kind on behalf of or against City, whether by contract or otherwise, unless such authority is expressly conferred under this Agreement or is otherwise expressly conferred in writing by City.

B. The personnel performing the Services under this Agreement on behalf of Consultant shall at all times be under Consultant's exclusive direction and control. Neither City, nor any elected or appointed boards, officers, officials, employees or agents of City, shall have control over the conduct of Consultant or any of Consultant's officers, employees or agents, except as set forth in this Agreement. Consultant shall not at any time or in any manner represent that Consultant or any of Consultant's officers, employees or agents are in any manner officials, officers, employees or agents of City.

C. Neither Consultant, nor any of Consultant's officers, employees or agents, shall obtain any rights to retirement, health care or any other benefits which may otherwise accrue to City's employees.

SECTION 10 – CONFLICTS OF INTEREST AND ANTI-FRAUD AND ANTI-CORRUPTION POLICIES

A. Consultant covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of City or which would in any way hinder Consultant's performance of Services under this Agreement. Consultant further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent, or subcontractor without the express written consent of the City Manager. Consultant agrees to at all times avoid conflicts with the interests of City in the performance of this Agreement.

B. City understands and acknowledges that Consultant is, as of the date of execution of this Agreement, independently involved in the performance of non-related Services for other governmental agencies and private parties. Consultant is aware of any stated position of City

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relative to such projects. Any future position of City on such projects shall not be considered a conflict of interest for purposes of this section.

C. Consultant understands and acknowledges City maintains an anti-fraud and anti-corruption policy to protect the City, its operations, and its employees from and against financial risks, operational breaches, and unethical, fraudulent and corrupt activities. Consultant represents and warrants that Consultant, its subcontractor(s) / subconsultant(s) and their respective employees providing Services pursuant to the Agreement are (1) in good standing; (2) have not been previously investigated, convicted, or debarred for fraudulent or corrupt activities; (3) will not participate in fraudulent or corrupt activities, and (4) will take steps to ensure that its employees and subcontractor(s) / subconsultant(s) employees do not participate in any fraudulent or corrupt activities. Consultant acknowledges and agrees further that it has a duty to and will report to City any information or incident(s) about possible fraudulent or corrupt activities Consultant may discover, and will cooperate in any fraud or corruption investigation conducted, with respect to Consultant's service provided pursuant to this Agreement.

SECTION 11 – OWNERSHIP OF DOCUMENTS

A. All original maps, models, designs, drawings, photographs, studies, surveys, reports, data, notes, computer files, files and other documents prepared, developed or discovered by Consultant in the course of providing any Services pursuant to this Agreement shall become the sole property of City and may be used, reused or otherwise disposed of by City without the permission of the Consultant. When requested by City, but no later than three years after project completion, Consultant shall deliver to City all such original maps, models, designs, drawings, photographs, studies, surveys, reports, data, notes, computer files, files and other documents.

B. All copyrights, patents, trade secrets, or other intellectual property rights associated with any ideas, concepts, techniques, inventions, processes, improvements, developments, works of authorship, or other products developed or created by Consultant during the course of providing Services (collectively the "Work Product") shall belong exclusively to City. The Work Product shall be considered a "work made for hire" within the meaning of Title 17 of the United States Code. Without reservation, limitation, or condition, Consultant hereby assigns, at the time of creation of the Work Products, without any requirement of further consideration, exclusively and perpetually, any and all right, title, and interest Consultant may have in the Work Product throughout the world, including without limitation any copyrights, patents, trade secrets, or other intellectual property rights, all rights of reproduction, all rights to create derivative works, and the right to secure registrations, renewals, reissues, and extensions thereof.

SECTION 12 – CONFIDENTIAL INFORMATION; RELEASE OF INFORMATION

A. All information gained or work product produced by Consultant in performance of this Agreement shall be considered confidential, unless such information is in the public domain or already known to Consultant. Consultant shall not release or disclose any such information or work product to persons or entities other than City without prior written authorization from the City Manager, except as may be required by law.

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B. Consultant, its officers, employees, agents or subcontractors, shall not, without prior written authorization from the City Manager or unless requested by the City Attorney of City, voluntarily provide declarations, letters of support, testimony at depositions, response to interrogatories or other information concerning the work performed under this Agreement. Response to a subpoena or court order shall not be considered "voluntary" provided consultant gives City notice of such court order or subpoena.

C. If Consultant, or any officer, employee, agent or subcontractor of Consultant, provides any information or work product in violation of this Agreement, then City shall have the right to reimbursement and indemnity from Consultant for any damages, costs and fees, including attorneys' fees, caused by or incurred as a result of Consultant's conduct. City acknowledges that Consultant, as a public agency is subject to the California Public Records Act (the "CPRA") and will comply with this Agreement to the extent that it does not conflict with CPRA

D. Consultant shall promptly notify City should Consultant, its officers, employees, agents or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed thereunder. City retains the right, but has no obligation, to represent Consultant or be present at any deposition, hearing or similar proceeding. Consultant agrees to cooperate fully with City and to provide City with the opportunity to review any response to discovery requests provided by Consultant. However, this right to review any such response does not imply or mean the right by City to control, direct, or rewrite such response.

SECTION 13 – SUSPENSION OF WORK

City may, at any time, by ten (10) days written notice suspend further performance by Consultant. All suspensions shall extend the time schedule for performance in a mutually satisfactory manner and Consultant shall be paid for Services performed and reimbursable expenses incurred prior to the suspension date.

SECTION 14 – COMPLIANCE WITH LAW

Consultant shall keep itself informed of and comply with all applicable federal, state and local laws, statutes, codes, ordinances, regulations and rules in effect during the term of this Agreement. Consultant shall obtain any and all licenses, permits and authorizations necessary to perform the Services set forth in this Agreement. Neither City, nor any elected or appointed boards, officers, officials, employees or agents of City, shall be liable, at law or in equity, as a result of any failure of Consultant to comply with this section.

SECTION 15 – COMPLIANCE WITH CIVIL RIGHTS

During the performance of this contract, Consultant agrees as follows:

A. Equal Employment Opportunity. In connection with the execution of this Agreement, Consultant shall not discriminate against any employee or applicant for employment because of race, religion, color, ancestry, age, sexual orientation, gender, gender identity and gender expression as protected categories specifically and expressively in that category, physical

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handicap, medical condition, marital status, sex, or national origin. Such actions shall include, but not be limited to, the following: employment, promotion, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rate of pay or other forms of compensation; and selection for training including apprenticeship.

B. Nondiscrimination Civil Rights Act of l964. Consultant will comply with all federal regulations relative to nondiscrimination to federally-assisted programs.

C. Solicitations for Subcontractors including Procurement of Materials and Equipment. In all solicitations, either by competitive bidding or negotiations, made by Consultant for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor, supplier, or lessor shall be notified by Consultant of Consultant's obligations under this Agreement and the regulations relative to nondiscrimination.

SECTION 16 – COMPLIANCE WITH CALIFORNIA LABOR CODE REQUIREMENTS

A. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects ("Prevailing Wage Laws"). If the services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Consultant and all subconsultants to comply with all California Labor Code provisions, which include but are not limited to prevailing wages (Labor Code Sections 1771, 1774 and 1775), employment of apprentices (Labor Code Section 1777.5), certified payroll records (Labor Code Sections 1771.4 and 1776), hours of labor (Labor Code Sections 1813 and 1815) and debarment of contractors and subcontractors (Labor Code Section 1777.1). The requirement to submit certified payroll records directly to the Labor Commissioner under Labor Code section 1771.4 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Section 1771.4.

B. If the services are being performed as part of an applicable "public works" or "maintenance" project, then pursuant to Labor Code Sections 1725.5 and 1771.1, the Consultant and all subconsultants performing such services must be registered with the Department of Industrial Relations. Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants, as applicable. Notwithstanding the foregoing, the contractor registration requirements mandated by Labor Code Sections 1725.5 and 1771.1 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Sections 1725.5 and 1771.1.

C. This Agreement may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements. Any stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor that affect Consultant's

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performance of services, including any delay, shall be Consultant's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Consultant caused delay and shall not be compensable by the City. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claim or liability arising out of stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor.

SECTION 17 – AUDIT AND INSPECTION OF RECORDS

A. Records of Consultant's direct labor costs, payroll costs, and reimbursable expenses pertaining to this project covered by this Agreement will be kept on a generally recognized accounting basis and made available to City if and when required for a period of up to 3 years from the date of Consultant's final invoice.

B. Consultant shall maintain all documents and records prepared by or furnished to Consultant during the course of performing the Services for at least three (3) years following completion of the Services. Such records include, but are not limited to, correspondence, internal memoranda, technical reports and investigations, calculations, books and accounts, accounting records documenting its work under its Agreement, and invoices, payrolls, records and all other data related to matters covered by this Agreement.

C. Consultant shall permit City to audit, examine and make copies, excerpts and transcripts from such records, and the Consultant shall in no event dispose of, destroy, alter, or mutilate said books, records, accounts, and data in any matter whatsoever for three (3) years after City makes the final or last payment or within three (3) years after any pending issues between City and Consultant with respect to this Agreement are closed, whichever is later.

SECTION 18 – LIMITATION OF LIABILITY

Notwithstanding any other provision of this Agreement, in no event shall City be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, arising out of or in connection with this Agreement or the Services performed hereunder.

SECTION 19 – COOPERATION BY CITY

All public information, data, reports, records, and maps as are existing and available to City as public records, and which are necessary for carrying out the work as outlined in the Exhibit A, "Scope of Services", shall be furnished to Consultant in every reasonable way to facilitate, without undue delay, the work to be performed under this Agreement.

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SECTION 20 – NOTICES

All notices required or permitted to be given under this Agreement shall be in writing and shall be personally delivered, emailed, sent by facsimile, or first class mail, addressed as follows:

To City: April Mitts, Assistant City Manager
City of St. Helena
1572 Railroad Avenue
St. Helena, California 94574
Email: amitts@cityofsthelena.org

To Consultant: Richard H. Averett Executive Director
Regional Government Services Authority
P.O. Box 1350
Carmel Valley, California 93924
Email: raverett@rgs.ca.gov

Notice shall be deemed effective on the date personally delivered or transmitted by facsimile, email, or, if mailed, three (3) days after deposit in the custody of the U.S. Postal Service.

SECTION 21 – TERMINATION

A. City or Consultant may terminate this Agreement, with or without cause, at any time by giving ten (10) days written notice of termination to the other party. If such notice is given, Consultant shall cease immediately all work in progress.

B. If either Consultant or City fail to perform any material obligation under this Agreement, then, in addition to any other remedies, either Consultant, or City may terminate this Agreement immediately upon written notice.

C. Upon termination of this Agreement by either Consultant or City, all property belonging to City which is in Consultant's possession shall be delivered to City. Consultant shall furnish to City a final invoice for work performed and expenses incurred by Consultant, prepared as set forth in this Agreement.

SECTION 22 – ATTORNEYS' FEES

If litigation or other proceeding is required to enforce or interpret any provision of this Agreement, the prevailing party in such litigation or other proceeding shall be entitled to an award of reasonable attorneys' fees, costs and expenses, in addition to any other relief to which it may be entitled. In addition, any legal fees, costs and expenses incurred to enforce the provisions of this Agreement shall be reimbursed to the prevailing party.

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SECTION 23 – ENTIRE AGREEMENT

This Agreement, including the attached Exhibits, is the entire, complete, final and exclusive expression of the parties with respect to the matters addressed therein and supersedes all other agreements or understandings, whether oral or written, or entered into between Consultant and City prior to the execution of this Agreement. No statements, representations or other agreements, whether oral or written, made by any party which are not embodied herein shall be valid and binding unless in writing duly executed by the parties or their authorized representatives.

SECTION 24 – SUCCESSORS AND ASSIGNS

This Agreement shall be binding on the heirs, executors, administrators, successors and assigns of the parties. However, this Agreement shall not be assigned by Consultant without written consent of the City.

SECTION 25 – CONTINUITY OF PERSONNEL

Consultant shall make every reasonable effort to maintain the stability and continuity of Consultant's staff assigned to perform the Services required under this Agreement. Consultant shall notify City of any changes in Consultant's staff assigned to perform the Services required under this Agreement, prior to any such performance.

SECTION 26 – DEFAULT

In the event that Consultant is in default under the terms of this Agreement, the City shall not have any obligation or duty to continue compensating Consultant for any work performed after the date of default and may terminate this Agreement immediately by written notice to Consultant.

SECTION 27 – WAIVER

Waiver by any party to this Agreement of any term, condition, or covenant of this Agreement shall not constitute a waiver of any other term, condition, or covenant. Waiver by any party of any breach of the provisions of this Agreement shall not constitute a waiver of any other provision, or a waiver of any subsequent breach or violation of any provision of this Agreement. Acceptance by City of any work or Services by Consultant shall not constitute a waiver of any of the provisions of this Agreement.

SECTION 28 – LAW TO GOVERN; VENUE

This Agreement shall be interpreted, construed and governed according to the laws of the State of California. In the event of litigation between the parties, venue in state trial courts shall lie exclusively in the County of Napa. In the event of litigation in a U.S. District Court, venue shall lie exclusively in the Northern District of California, in San Francisco.

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SECTION 29 – SEVERABILITY

If any term, condition or covenant of this Agreement is declared or determined by any court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement shall not be affected thereby and the Agreement shall be read and construed without the invalid, void or unenforceable provision(s).

SECTION 30 – THIRD PARTY BENEFICIARIES

Consultant's subconsultants shall agree to be bound to the terms of the Agreement to the extent of their scope of Services, including but not limited to, terms regarding indemnity and dispute resolution, and shall agree that City is deemed an express third party beneficiary of their subconsultant agreements. Nothing contained in this Agreement, however, shall operate to confer such or similar rights or benefits on persons or entities not party to this Agreement.

SECTION 31 – STATUTES OF LIMITATION

As between the parties to this Agreement, any applicable statute of limitations for action arising out of, pertaining to, or relating to any act or failure to act in connection with this Agreement shall commence to run on the date of City's issuance of the final Certificate for Payment, or termination of this Agreement, whichever is earlier, except for latent defects and/or deficiencies, for which the applicable statute of limitation shall begin to run upon discovery of the defect and/or deficiency and its cause.

SECTION 32 – SPECIAL PROVISIONS

This Agreement is subject to the following special provisions: none.

IN WITNESS WHEREOF, the parties hereto have accepted, made, and executed this Agreement upon the terms, conditions, and provisions above stated, the date first above written.

Consultant:

DocuSigned by:
By: Richard Averett 8/8/2022
19AD7AEF0D4CE43A...
Richard H. Averett
Executive Director

Approved as to Form:

DocuSigned by:
By: Sky Woodruff 8/8/2022
E175E1A1328704514...
Name: Sky Woodruff
Title: Authority Counsel

City:

DocuSigned by:
By: Anil Comelo, St. Helena City Manager 8/8/2022
A9BC3A4076E94E7...
Anil Comelo
City Manager

Approved as to Form:

DocuSigned by:
By: Ethan Walsh, St. Helena City Attorney 8/9/2022
7A1F642E5104248...
Name: Ethan Walsh
Title: City Attorney

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EXHIBIT A
SCOPE OF SERVICES

Subject to the terms and conditions of this Agreement, RGS shall assign RGS employee(s) to perform preliminary consultative, project, and assessment services as Finance Advisor(s) to the City of St Helena (Agency). RGS employees shall perform the functions as assigned by the RGS project lead.

- RGS staff will not provide direct services to customers of the City of St. Helena otherwise services may be within any of the RGS service areas, including but not limited to:
    - Provide immediate ongoing consultative services to the City.
    - Provide professional expertise to facilitate timely completion of finance and accounting projects including but not limited to:
        - Bank Account Reconciliation
        - Journal Entries
        - Liability entries and reconciliations
        - Grant reporting and cash withdrawals.
    - Provide professional expertise and outsourced finance services as requested by the City
- Be reasonably available to perform the services during the normal work week. Work will generally be performed off site.
- Meet regularly and as often as necessary for the purpose of consulting about the scope of work performed with the appropriate Agency project manager, and with the RGS project lead.
- Perform other duties as are consistent with the services described herein and approved by the RGS service advisor.

RGS STAFF RATES

CLASSIFICATION	HOURLY RATE*
Chief Operating Officer	$140 to $230
Deputy Chief Operating Officer	$135 to $205
Senior/Lead Advisor	$130 to $200
Advisor	$120 to $170
Project Advisor	$110 to $130
Project Coordinator	$90 to $125
Technical Specialist	$80 to $120

Regional Government Services may charge travel expenses at the current Federal rate for advisor travel to and from agency worksite.

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Review and consideration of the 2022 St. Helena Annual Housing Element Progress Report.**

CEQA Determination: **Not a CEQA project**

Prepared By: Aaron Hecock, Senior Planner

Reviewed By: Maya DeRosa, Community Development Director

Approved By: Anil Comelo, City Manager

BACKGROUND

In 1969, the state mandated that all California cities, towns, and counties must plan for the housing needs of residents regardless of income. This state mandate is called the Housing Element (HE) and Regional Housing Needs Allocation (RHNA). The California Department of Housing and Community Development (HCD) determines the total number of new homes the Bay Area needs to build and how affordable those homes need to be in order to meet the housing needs of people at all income levels. The numbers are provided to the Association of Bay Area Governments (ABAG) who then divides them up between all Bay Area jurisdictions.

Pursuant to Government Code Section 65400, by April 1st of each year, cities are required to submit an annual report to the Governor's Office of Planning and Research (OPR) and HCD outlining the progress made towards implementing the City's HE. Specifically, the Annual Progress Report (APR) is required to detail local efforts to remove governmental constraints to the maintenance, improvement, and development of housing. In addition, the APR must detail the actions taken by the local government towards completion of the programs and status of the local government's compliance with the deadlines in its HE.

On May 26, 2015, the City of St. Helena adopted its 5th cycle state-mandated Housing Element update, spanning the years 2015-2023. This Housing Element details how the

City plans to accommodate a total of 31 RHNA units within this time frame. The Community Development Department is providing this annual update to inform the Council and public on the progress being made to implement the Housing Element policy priorities.

The City is currently in the process of updating the Housing Element for the 6th RHNA cycle (2023-2031) with adoption anticipated in May 2023.

DISCUSSION

The current Housing Element details goals, policies, quantified objectives, and implementing actions for the development, rehabilitation, and preservation of housing based upon the findings of the Housing Needs Assessment and input received through public outreach. The Housing Element is divided into two elements (1) the Housing Needs Assessment and (2) the Housing Element Update, which includes six goals, policies, and an eight-year action plan. These six overarching goals (listed below) endeavor to facilitate housing development:

1. A Diversity of Housing to Meet Local Needs
2. Efficient Land Use and High Quality Neighborhoods
3. Conservation of Existing Housing
4. Assistance to Support Affordable Housing
5. Resource Conservation
6. Equal Housing Opportunities

The implementation of these goals are supported by a number of Policies, Implementing Actions, and Quantified Objectives. As reported in the 2022 APR, the City Council and staff have implemented and met several of the Housing Element goals and programs, including some of the quantified objectives and implementing actions of several goals of the City's adopted Housing Element.

HCD requires a report to the City Council at a public meeting. Given this, staff has attached APR worksheets to supplement the information provided in this report. For an implementation progress update on the policies being implemented, or anticipated timeline for their implementation (from the staff perspective), the Council and community should refer to attached Table D from the APR worksheet. The required APR was submitted to and accepted by OPR and HCD prior to the April 1, 2023 deadline.

As identified in Table B of the APR, the City has issued building permits for 127 new residential units (including ADUs) during this 2015-2023 RHNA Cycle, while the RHNA allocation from HCD was 31. However, the City has not yet met the individual affordable housing goals for very-low and moderate income categories identified in the RHNA allocations. It should be noted that one deed restricted moderate income unit (in addition to 4 low income units) were approved as part of the 963 Pope Street affordable housing project. Once building permits are issued for this project, those units will count toward our RHNA allocation.

The 2015-2023 Housing Element and supporting information can be found at the following link:
www.cityofsthelena.org/planning/page/2015-2023-housing-element

Information on the City's 2023-2031 Housing Element Update can be found at the following link:
www.sthelenahousing.com

FISCAL IMPACT

Given that the adopted Housing Element is an eight-year policy document, the fiscal impacts of implementing and meeting the goals of the 2015-2023 Housing Element are dependent on which of these goals are chosen to be addressed within a given budget year, and how the individual tasks are assigned (City staff vs consulting staff). As specific elements of the policy direction are brought forward, staff will provide individual costs and staff resources needed to accommodate each.

RECOMMENDED ACTION

It is recommended that the City Council review, consider, and file this report recognizing that staff submitted the information to HCD and OPR in keeping with the April 1, 2023 mandate.

ATTACHMENTS

Table B
Table D
LEAP Summary

Jurisdiction	St. Helena	
Reporting Year	2022	(Jan. 1 - Dec. 31)
Planning Period	5th Cycle	01/31/2015 - 01/31/2023

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation

This table is auto-populated once you enter your jurisdiction name and current year data. Past year information comes from previous APRs.

Please contact HCD if your data is different than the material supplied here

Table B
Regional Housing Needs Allocation Progress
Permitted Units Issued by Affordability

Income Level		1 RHNA Allocation by Income Level		2 2015	2016	2017	2018	2019	2020	2021	2022	2023	3 Total Units to Date (all years)	4 Total Remaining RHNA by Income Level
Very Low	Deed Restricted	8	-	-	5	-	-	2	-	-	-	-	7	1
	Non-Deed Restricted		-	-	-	-	-	-	-	-	-	-		
Low	Deed Restricted	5	-	-	3	-	-	6	-	-	-	-	9	-
	Non-Deed Restricted		-	-	-	-	-	-	-	-	-	-		
Moderate	Deed Restricted	5	-	-	-	-	-	-	-	-	-	-	4	1
	Non-Deed Restricted		-	4	-	-	-	-	-	-	-	-		
Above Moderate		13	-	23	6	11	10	4	17	19	17	-	107	-
Total RHNA		31												
Total Units			-	27	14	11	10	12	17	19	17	-	127	2

Progress toward extremely low-income housing need, as determined pursuant to Government Code 65583(a)(1).

	5 Extremely low-Income Need		2015	2016	2017	2018	2019	2020	2021	2022	2023	6 Total Units to Date	7 Total Units Remaining
Extremely Low-Income Units*	4		-	-	-	-	-	-	-	-	-	-	4

*Extremely low-income houisng need determined pursuant to Government Code 65583(a)(1). Value in Section 5 is default value, assumed to be half of the very low-income RHNA. May be overwritten.
Note: units serving extremely low-income households are included in the very low-income RHNA progress and must be reported as very low-income units in section 7 of Table A2. They must also be reported in the extremely low-income category (section 13) in Table A2 to be counted as progress toward meeting the extremely low-income housing need determined pursuant to Government Code 65583(a)(1).
Please note: For the last year of the 5th cycle, Table B will only include units that were permitted during the portion of the year that was in the 5th cycle. For the first year of the 6th cycle, Table B will only include units that were permitted since the start of the planning period. Projection Period units are in a separate column.
Please note: The APR form can only display data for one planning period. To view progress for a different planning period, you may login to HCD's online APR system, or contact HCD staff at apr@hcd.ca.gov.

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation

Jurisdiction	St. Helena	
Reporting Year	2022	(Jan. 1 - Dec. 31)

Table D

Program Implementation Status pursuant to GC Section 65583

Housing Programs Progress Report
Describe progress of all programs including local efforts to remove governmental constraints to the maintenance, improvement, and development of housing as identified in the housing element.

1	2	3	4
Name of Program	**Objective**	**Timeframe in H.E**	**Status of Program Implementation**
HE1.A	**Continue to exempt permits for regulated affordable units as well as second units from Growth Management System**	**Ongoing**	**The City currently exempts all units, including affordable housing units and Accessory Dwelling Units from the Growth Management system in compliance with current state law.**
HE1.F	**Fast-track housing developments that meet lower income and special housing needs.**	**Ongoing**	**The City is committed to expediting any affordable housing applications that are submitted for review and action. Eight owner-occupied affordable housing units were approved by the City in Dec. 2016 (Self-Help Affordable Housing Project called the Brenkle Ct. Project from Our Town St. Helena (OTSH)). Building permits for each unit were issued in 2019. An additional 5 deed restricted affordable units were approved in 2020 however building permits have not yet been issued.**
HE2.A	**Provide incentives for higher density housing. Explore possible incentives for building attached market rate housing units for rent and for sale.**	**Ongoing**	**In an effort to implement this Goal, the City has removed the Use Permit requirement for multi-family housing in the High Density Residential land use designation and all of the Housing Opportunity Sites located within other land use designations (Medium Density Residenital). In addition, the City has created an SB 330 Checklist to further streamline the design and approval of by-right multi-family units within the community.**

HE3.E	Review housing needs, achievements and challenges as part of the City's regular General Plan review. As required by State law, submit a progress report to the State Department of Housing and Community Development and Governor's Office of Planning and Research by April 1st of each year.	Annually	This report is being done as a part of this Goal and as of 2022 reporting year, the City of St. Helena is up to date on its reporting requirements regarding Housing Element implementation with the Office and HCD.
HE4.C	Reduce, defer, or waive fees for affordable housing developments. The City will establish a set of criteria for project eligibility to have fees reduced, deferred or waived. The City will explore and adopt as appropriate higher incentives for affordable housing developments with units affordable to extremely low and very low income households.	Ongoing	Since 2010, the City has made significant efforts to provide financial incentives, including reducing the application and impact fees for affordable housing projects and will continue to do so into the foreseeable future. Since 2016, the City committed substantial amounts of Affordable Housing Trust Fund monies (approximately $2,450,000) to three different affordable housing projects, anticipated to result in the construction and/or occupancy of 21 new affordable housing units in St. Helena through 2022. Since 2015, the City has fully funded all funding requests made by an affordable housing developers to assist with the design and construction of affordable housing units within St. Helena.
HE4.F	Pursue additional funding for affordable housing. Explore other options for affordable housing funding, including a real property transfer tax and Housing Trust Fund contributions from the wine and hospitality industry in Napa Valley.	2018 and ongoing	Since 2010, the City has made significant efforts to provide financial incentives, including reducing the application and impact fees for affordable housing projects and will continue to do so into the foreseeable future. In 2018, the City joined with all municipalities in Napa County, put Measure E on the ballot, requesting voter approval of a special tax to increase Transit Occupancy Taxes on hotels by one-percent, with these additional funds being for the sole purpose of housing. This measure was approved and went into effect January 1, 2019. Estimated annual revenue from this measure is approximately $280,000.
HE4.G	Continue Section 8 rent subsidy certificates. Work with the City of Napa Housing Authority to provide continued rental assistance to low, very low and extremely low income households.	Ongoing	The City continues to contract with the City of Napa for Housing Authority services, including Section 8.

HE4.L	**Explore the potential of using Housing Trust Fund money to purchase existing housing for conversion to restricted affordable housing and commit funding as appropriate. Priority use of Housing Trust Fund monies will be given to the creation of housing affordable to extremely low income households.**	**Ongoing**	**Since 2010, the City has made significant efforts to utilize Affordable Housing Trust Fund monies to support the development and preservation of affordable housing projects and will continue to do so into the foreseeable future.**
HE5.B	**Encourage use of alternative energy technologies. Create incentives for the use of solar energy in new and rehabilitated housing. Incentives to adopt as appropriate include, but are not restricted to, ensuring a streamlined review process for applications, deferred fees, and reduced applicable city standards.**	**Ongoing**	**The City currently issues building permits for solar panel installation, backup battery installation, and electric vehicle charging infrastructure under the "Rapid Permit" category and will continue to do so into the foreseeable future. The City has extended services for Solar Permits to be submitted via email and paid over the phone to expedite further the process and reduce the number of trips into City Hall to get the permit.**
HE5.F	**Provide public information on alternative energy technologies for residential developers, contractors, and property owners. The City will provide information on its website and/or City Hall regarding alternative energy technology options, possible sources of financing, and any applicable information regarding necessary local permits.**	**Ongoing**	**The City currently provides Green Building Code information upon request and has recently updated the City website, allowing additional information to be provided on an on-going basis. In 2018, the City added information regarding solar panel installation, backup battery installation, and electric vehicle charging infrastructure to the City's website to ease access to the requirements and incentives available.**

HE5.D	Require cost-effective energy conservation measures in all new and rehabilitated housing to promote long-term affordability for occupants. The City will adopt the State's new Energy Efficiency Standards as part of any update to the California Building Standards Code and ensure that all new housing units constructed in the City meet or exceed these standards.	Tri-Annually	The City continues to work toward concurrent building code adoption along with standard building code updates. The last update being January 1, 2020 with adoption of the 2019 Code Standards.
HE5.H	Continue to apply Municipal Code provisions pertaining to water resources. City will continue to require water-efficient landscaping for new residential and commercial construction, as well as implementing the Water Use Efficiency and Use Guidelines.	Ongoing	The City has adopted a "Water Neutral" policy for all new development (Municipal Code Chapter 13.12) and continues to implement a Water Efficient Landscape Ordinance (MWELO) in keeping with anticipated State requirements.
HE1.J	Encourage development of co-housing, ecohousing, 'green' manufactured homes and other 'nontraditional' forms of housing. Ensure these housing types are addressed in the development of design guidelines to streamline to approval process.	Ongoing	The City Council has expressed an interest in reviewing housing needs Citywide now that the 2040 St Helena General Plan has been adopted. In addition, staff and the City Council are committed to creation and adoption of Design Guidelines, consistent with the adoption of the 2015 Housing Element and 2040 General Plan.
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.	Ongoing	No revisions to the current zoning code have been made yet as the comprehensive zoning code update is currently underway (anticipated adoption in 2023). However, all City actions are made in keeping with California State law and any request to implement a Manufactured Housing Overlay District would be reviewed as such.

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.**	**Ongoing**	**In 2020 and 2023, the City adopted updated ADU regulations which streamlined the review process for ADU construction and conversion, in keeping with the requirements of State law. The St Helena 2040 General Plan update was adopted in May 2019. A comprehensive zoning code has begun and will include additional direction regarding the development of Accessory Dwelling Units.**
HE2.J	**Provide financial assistance for second unit development. Incentives might include low interest loans or fee waivers.**	**2020/2023**	**The City of St. Helena has amended its zoning ordiancne to be compliant with state law with regards to ADUs, their permitting, and reduced impact fees. A comprehensive zoning code update has begun will include additional direction regarding the development of Accessory Dwelling Units (ADUs). A component of this review will include the ability of the City to provide financial assistance for ADU development. In the mean time, City staff has been working with non-profit organizations and grant providers to find other mechanisms to encourage ADU development.**
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.**	**Ongoing**	**The City of St. Helena has amended its zoning ordiancne to be compliant with state law with regards to ADUs, their permitting, and reduced impact fees. A comprehensive zoning code update has begun will include additional direction regarding the development of Accessory Dwelling Units (ADUs).**
HE2.M	**Link financial incentives and development standard variances to affordability requirements for second units. Require that either the main house or the second unit is used as a rental unit that is affordable to moderate or below moderate households whenever the City assists in development through financial incentives or by granting a variance**	**Ongoing**	**The City Council has expressed an interest in reviewing housing needs Citywide which is expected to occur along with the comprehensive zoning code update. Financial incentives and potential variance from development standards will be included as a part of this review. The City has also begun its 6th Cycle Housing Element Update which will identify Key Housing Opportunity Sites and potenital rezoning oppotunities withing the City.**

HE2.N	**Respond to complaints regarding illegal units. The City will work with the property owners to help bring illegal units up to code and to abate the use of non-habitable buildings as living units**	**Ongoing**	**While the City does not have a dedicated Code Enforcement Department, Planning and Community Improvement Department staff is responsible for responding to Code Enforcement complaints and prioritize life and safety issues, such as substandard housing, in these efforts. Additional Code Enforcement improvements have been identified as an element of the adopted City Council goals.**
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.**	**Ongoing**	**The City Council has expressed an interest in reviewing housing needs Citywide which is expeted to occur along with the comprehensive zoning code update. Financial incentives and potential variance from development standards will be included as a part of this review. Further, a majority of the City's residential land is designated as Medium Density Residential, allowing conversion of existing SFD to MFD at a density of 5.1-16 units per acre. The City has also begun its 6th Cycle Housing Element Update which will identify Key Housing Opportunity Sites and potenital rezoning oppotunities withing the City.**
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 available sites on the City's website. City will explore and adopt as appropriate incentives to encourage affordable housing clusters, including, but not limited to priority permitting processing, reduced or waived development fees, reduced parking and/or other city standards, and an additional density bonus.**	**Ongoing**	**The City Council has expressed an interest in reviewing housing needs Citywide and have prioritized creation of a Citywide Housing Strategy as one of the Council Goals. This is expected to occur along with the comprehensive zoning code update (in 2023). Incentives for the development of these units including parking ratio reductions, will be included as a part of this review. Further, a majority of the City's residential land is designated as Medium Density Residential, allowing conversion of existing SFD to MFD at a density of 5.1-16 units per acre. The City has also begun its 6th Cycle Housing Element Update which will identify Key Housing Opportunity Sites and potenital rezoning oppotunities withing the City.**

HE3.A	**Restrict conversion of rental units to condominiums. Current policy allows conversion to condominiums under certain circumstances when the vacancy rate is high. The presence of second homes results in an inflated vacancy rate. The policy should be further studied to reflect a general guiding principle of preserving the affordable housing stock while eliminating the current linkage to vacancy rates.**	**Ongoing**	**The City Council has expressed an interest in reviewing housing needs Citywide and have prioritized creation of a Citywide Housing Strategy as one of the Council Goals. This is expected to occur along with the comprehensive zoning code update. Restrictions on condominium conversions of existing apartment units will be included as a part of this review.**
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.**	**Ongoing**	**The City currently charges an Housing Impact Fee. Further, the City Council has expressed an interest in reviewing housing needs Citywide and have prioritized creation of a Citywide Housing Strategy as one of the Council Goals. This is expected to occur concurrently with the comprehensive zoning code update. Restrictions on conversions of existing housing units to non-housing uses will be included as a part of this review.**
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.**	**Ongoing**	**The City strictly limits the use of residential units for short-term rental (STR) use to a maximum of 25 STR units within the City. Funds collected from these units are utilized to assist with active and aggressive enforcement of these limitations. This enforcement continued to be a priority in 2022.**

HE4.A	**Review and possibly amend the inclusionary housing ordinance to: (1) adjust the inclusionary housing ordinance to require further distribution of affordable units with the various income categories. (2) Balance collecting housing impact fees with the requirement to construct affordable housing, either on or off site depending on the size of the site and other site conditions, for larger commercial developments. Evaluate increasing the housing impact fees to reflect the increasing cost of housing in the community. Collect housing impact fees for small commercial development where requiring residential construction would not be feasible. (3) Increase appropriate residential construction in-lieu fees and/or create a sliding scale for larger homes. (4) Add an above moderate-income workforce housing component to the Inclusionary Housing Ordinance requirements**	**Ongoing**	**The City Council has expressed an interest in reviewing housing needs Citywide and have prioritized creation of a Citywide Housing Strategy as one of the Council Goals. This is expected to occur concurrently with the comprehensive zoning code update (in 2023). Potential revisions to the inclusionary housing requirements will be included as a part of this review. In preparing for this process, the City commissioned a "White Paper" on housing issues to further highlight the housing needs and opportunities available within the community. The City has also begun its 6th Cycle Housing Element Update which will identify Key Housing Opportunity Sites and potenital rezoning oppotunities withing the City.**
Goal 3 Quantified Objective:	**Assist in the acquisition of low-interest loans for rehabilitation, including energy conservation, of 10 lower-income housing units by January 31, 2023 of the end of the Housing Element planning period (2 extremely low income, 2 very low income, 3 low income, and 3 moderate income households).**	**12/31/2022**	**City was awarded $500,000 HOME funds grant in 2017 and initiated implementation of a program to make 0-interest, 0-payment 30-year loans for rehabilitation work to owners of deed restricted homes. To date, the City has expended or committed approximately $448,000 of these funds to assist 18 low income home owners and continues to roll out funds as loans are repaid. The City was awarded another $500,000 in HOME funds in 2020 however the City is waiting for approval from HCD to begin processing loan requests as they review the updated guidelines and environmental documentation.**

Goal 1-Quantified Objective:	**Construct 4 units of affordable housing to Extremely-Low income households; 4 units of housing affordable housing to Very Low Income households; 5 units for Low Income households; 5 units for Moderate Income households; and 13 units for above Moderate Income households by October 31, 2022 (31 total RHNA).**	**12/31/2022**	**The City has issued building permits for the Turley Flats affordable housing project, an 8-unit multifamily project with loan funding from the Affordable Housing Trust Fund (all low income). Occupancy of all units occurred in 2019. Further, the City has issued building permits for the Brenkle Court 8-unit affordable housing project (2 very-low and 6 low income). In 2020, the City approved a deed restricted affordable housing project (4 low to very-low income and 1 moderate income) at 963 Pope Street. The combined affordability of these units is expected to help the City make significant progress toward meeting these unit counts.**
Goal 4 Qualtified Objective:	**Reduce, defer or waive fees for 18 housing units affordable to extremely low, low, very low and moderate income households.**	**12/31/2022**	**The City has both reduced and deferred fees (through a loan from the Affordable Housing Trust Fund) for the Turley Flats Affordable Housing Project, an 8-unit multi-family development at 1105 Pope St, the Brenkle Court 8-unit affordable housing project access off of McCorkle, and the 5-unit affordable houisng project at 963 Pope Street. Combined, the City has reduced, deferred or waived fees for 21 affordable housing units as of Jan. 1, 2022.**

Jurisdiction	St. Helena	
Reporting Year	2022	(Jan. 1 - Dec. 31)

ANNUAL ELEMENT PROGRESS REPORT
Local Early Action Planning (LEAP) Reporting
(CCR Title 25 §6202)

Please update the status of the proposed uses listed in the entity's application for funding and the corresponding impact on housing within the region or jurisdiction, as applicable, categorized based on the eligible uses specified in Section 50515.02 or 50515.03, as applicable.

Total Award Amount	$ 65,000.00	*Total award amount is auto-populated based on amounts entered in rows 15-26.*

Task	$ Amount Awarded	$ Cumulative Reimbursement Requested	Task Status	Other Funding	Notes
Issue Request for Proposals	$0.00	$0.00	Completed	Local General Fund	
Select Consultant	$0.00	$0.00	Completed	Local General Fund	
Execute Contract	$0.00	$0.00	Completed	Local General Fund	
Public Workshop	$5,000.00	$0.00	Completed	Local General Fund	
Study Session with Planning Commissioin	$5,000.00	$0.00	Completed	Local General Fund	
Study Session with City Council	$5,000.00	$0.00	Completed	Local General Fund	
Prepare Administrative Draft Housing Element	$19,500.00	$0.00	Completed	Local General Fund	
Prepare Draft CEQA Document	$19,500.00	$0.00	Completed	Local General Fund	
Public Review CEQA Document	$5,000.00	$0.00	In Progress	Local General Fund	
Submit Draft Housing Element to HCD for Review	$0.00	$0.00	Completed	Local General Fund	
Planning Commission Hearing	$3,000.00	$0.00	In Progress	Local General Fund	
City Council Adoption	$3,000.00	$0.00	In Progress	Local General Fund	

Summary of entitlements, building permits, and certificates of occupancy (auto-populated from Table A2)

Completed Entitlement Issued by Affordability Summary	
Income Level	**Current Year**

Very Low	Deed Restricted	0
	Non-Deed Restricted	0
Low	Deed Restricted	0
	Non-Deed Restricted	0
Moderate	Deed Restricted	0
	Non-Deed Restricted	0
Above Moderate		5
Total Units		**5**

Building Permits Issued by Affordability Summary		
Income Level		**Current Year**
Very Low	Deed Restricted	0
	Non-Deed Restricted	0
Low	Deed Restricted	0
	Non-Deed Restricted	0
Moderate	Deed Restricted	0
	Non-Deed Restricted	0
Above Moderate		17
Total Units		**17**

Certificate of Occupancy Issued by Affordability Summary		
Income Level		**Current Year**
Very Low	Deed Restricted	0
	Non-Deed Restricted	0
Low	Deed Restricted	0
	Non-Deed Restricted	0
Moderate	Deed Restricted	0
	Non-Deed Restricted	0
Above Moderate		0
Total Units		**0**

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration of approval of a Resolution approving out-of-state travel for (1) Administrative Services Director, Mandy Kellogg, to attend the 2023 ICMA Local Government Reimagined Conference to be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont (2) Senior Management Analyst, Martin Beltran, to attend the Government Finance Officers Association (GFOA) 117th Annual Conference to be held May 21-24, at the Oregon Convention Center, Portland, Oregon.**

CEQA Determination: **Not a CEQA project**

Prepared By: Martin Beltran, Senior Management Analyst

Reviewed By: Mandy Kellogg, Administrative Services Director

Approved By: Anil Comelo, City Manager

DISCUSSION

The 2023 ICMA Local Government Reimagined Conference will be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont. ICMA is the world's leading association of professional city and county managers and other employees who serve local governments. The Local Government Reimagined Conference engages innovative thought leaders to identify new trends and opportunities to better deliver programs and services to the people.

The cost of the conference including registration, transportation, hotel, and per diem costs is expected to be approximately $2,500 and funds for the ICMA Local Government Reimagined Conference have been included in the FY 2022-23 adopted budget.

The Government Finance Officers Association (GFOA) 117th Annual Conference will be held May 21-24, at the Oregon Convention Center, Portland, Oregon. The GFOA

Conference hosts thousands of local government finance professionals and provides an opportunity to encourage and prepare them to take a leadership role within their organization. Through a variety of sessions and keynote addresses, attendees will learn best practices, policies, and procedures to apply to their particular governments as well as learn techniques and skills to enhance their professional development.

The cost of the conference including registration, transportation, hotel, and per diem costs is expected to be approximately $2,000 and funds for the GFOA Conference have been included in the FY 2022-23 adopted budget. Martin applied for the First-Time Attendee Scholarship program through GFOA. If awarded, the scholarship covers the full conference registration fee of $500. All scholarship recipients are responsible for their travel and lodging.

City Council Resolution 85-44 requires City Council approval for staff to travel out of state for meetings, training, or conferences.

FISCAL IMPACT

Fiscal impact is estimated to be approximately $2,500 for ICMA Local Government Reimagined Conference and approximately $2,000 for GFOA 117th Annual Conference. Funds are available in the FY 2022-23 adopted budget.

RECOMMENDED ACTION

Approve the attached resolution

ATTACHMENTS

Attachment 1: Resolution

CITY OF ST. HELENA

RESOLUTION NO. 2023-___

Resolution Authorizing Out-of-State Travel for (1) Administrative Services Director, Mandy Kellogg, to attend the 2023 ICMA Local Government Reimagined Conference to be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont (2) Senior Management Analyst, Martin Beltran, to attend the Government Finance Officers Association (GFOA) 117th Annual Conference to be held May 21-24, at the Oregon Convention Center, Portland, Oregon

RECITALS

A. City Council Resolution 85-44 requires City Council approval for staff to attend out-of-state meetings and training; and

B. The 2023 ICMA Local Government Reimagined Conference will be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont; and

C. The ICMA conference brings the local government community together for unparalleled leadership and professional development, networking, and best-in-class programming; and

D. The cost of the 2023 ICMA Local Government Reimagined Conference including registration, transportation, hotel, and per diem costs is expected to be approximately $2,500; and

E. The Government Finance Officers Association (GFOA) 117th Annual Conference will be held May 21-24, at the Oregon Convention Center, Portland, Oregon; and

F. The GFOA Conference hosts thousands of local government finance professionals and provides an opportunity to encourage and prepare them to take a leadership role within their organization; and

G. The cost of the GOFA 117th Annual Conference including registration, transportation, hotel, and per diem costs is expected to be approximately $2,000; and

H. Funds for 2023 ICMA Local Government Reimagined Conference and GFOA 117th Annual Conference are included in the FY 2022-23 adopted budget.

RESOLUTION

The City Council of the City of St. Helena hereby resolves as follows:

1. Travel is not a CEQA project; and
2. Approves out-of-state travel for Administrative Services Director, Mandy Kellogg, to attend the 2023 ICMA Local Government Reimagined Conference to be held April 12-14, at the Hilton Burlington Lake Champlain, Burlington, Vermont; and
3. Approves out-of-state travel for Senior Management Analyst, Martin Beltran, to attend the Government Finance Officers Association (GFOA) 117th Annual Conference to be held May 21-24, at the Oregon Convention Center, Portland, Oregon.

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Councilmember Anna Chouteau: _____

Councilmember Lester Hardy: _____

Councilmember Billy Summers: _____

APPROVED: ATTEST:

_____

_____

Paul Jamison Dohring, Mayor

Cindy Tzafopoulos, City Clerk

Report to the City Council
Regular City Council - 28 Mar 2023 - UPDATED 03-28-23

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration of a Resolution to execute contract amendment with BKF for design work related to the Main Street St. Helena Pedestrian Improvements Project and authorizing a budget increase of $151,000 to design in CIP Project R18-81 with funding allocated from Gas Tax Funds to Streets Capital Fund 741.**

CEQA Determination: **Exempt**

Prepared By: Eric Janzen, Assistant Public Works Director

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: Anil Comelo, City Manager

BACKGROUND

The City of St. Helena has contracted with BKF Engineering to provide engineering and landscape architect services for the Main Street St. Helena Pedestrian Improvements Project (CIP Project ID. #R18-81). On December 11, 2018, the City Council approved STH Contract: FY 2019-075 with BKF in the amount of $529,000 for engineering and landscaping services for the Main Street St. Helena Pedestrian Improvements Project.

Amendments to this contract were approved by City Council on May 28, 2019 and June 11, 2019 to expand the scope of improvements on Main Street. These amendments increased the contract not-to-exceed amount to $635,600.

Due to budget constraints, on November 9, 2021 the City Council endorsed segmenting the Main Street St. Helena Pedestrian Improvements Project into two phases. On December 14, 2021, the City Council approved an amendment to STH Contract: FY 2019-075 to prepare bid documents for the northern segment of the project, Main Street from Pine Street to Adams Street. This amendment also allocated funding for title reports and

right-of-way exhibits for both the northern and southern segments. This amendment increased the contract not-to-exceed amount to $781,600.
No funding was allocated with the 2021 amendment for additional engineering or landscape architect services for the southern segment of the project, Main Street from Adams Street to the Sulphur Creek Bridge.

DISCUSSION
While funding for the project is not yet fully amassed, City Staff is preparing to move forward with the southern segment of the Main Street St. Helena Pedestrian Improvements Project (Main Street from Adams Street to the Sulphur Creek Bridge). The goal being to be able to swiftly initiate a Request for Proposals (RFP) as soon as funding becomes available.

BKF has special knowledge of this project and had developed 90% plans for the southern segment prior to November 9, 2021 decision to segment the project. Continuing to work with BKF preserves this past work and is the most cost-effective solution to make the project bid ready. Therefore, the contract with BKF needs to be amended to provide additional engineering and landscape architect services. BKF will also provide bid documents including technical specifications and engineer's estimate.

Public Works Staff received a quote from BKF for the additional scope of work in the amount of $151,000 and it is included in the attachments presented with this staff report. This amendment will increase the contract not-to-exceed amount to $932,600.

FISCAL IMPACT
Total fiscal impact is $151,000, which will be funded utilizing unallocated Gas Tax Funds (Funds 225, 226, 227, 228, and 229).

RECOMMENDED ACTION
Approve Resolution to execute contract amendment with BKF for design work related to the Main Street St. Helena Pedestrian Improvements Project and authorizing a budget increase of $151,000 to design in CIP Project R18-81 with funding allocated from Gas Tax Funds to Streets Capital Fund 741.

ATTACHMENTS
Resolution.Amendment BKF Contract.2023
PROPOSAL.2023_0224_Main_St_PSE_Amendment
BKF_ Amendment #4 STH Contract FY2019-075 12022021

CITY OF ST. HELENA

RESOLUTION NO. 2023-

Resolution of the City Council of the City of St. Helena authorizing the City Manager to execute Amendment No. 4 to STH Contract: FY 2019-075 in the amount of $151,000 to the Professional Services Agreement with BKF for the *Main Street St. Helena Pedestrian Improvements Project,* for a total not-to-exceed of $923,600 and authorizing a budget increase of $151,000 to design in CIP Project R18-81 with funding allocated from Gas Tax Funds to Streets Capital Fund 741.

WHEREAS, The City of St. Helena has contracted with BKF Engineering to provide engineering and landscape architect services for the *Main Street St. Helena Pedestrian Improvements Project* (CIP Project ID. #R18-81); and

WHEREAS, On December 11, 2018, the City Council approved STH Contract: FY 2019-075 with BKF in the amount of $529,000 for engineering and landscaping services for the *Main Street St. Helena Pedestrian Improvements Project*; and

WHEREAS, The City is prepared to move forward with the southern segment of the *Main Street St. Helena Pedestrian Improvements Project* (Main Street from the Sulphur Creek Bridge to Adams Street); and

WHEREAS, the City wishes to amend the contract with BKF to provide engineering and landscape architect services. BKF will also provide bid documents including technical specifications and engineer's estimate; and

WHEREAS, BKF has special knowledge for the southern segment of this project; and

WHEREAS, Continuing to work with BKF preserves this past work and is the most cost-effective solution to complete the project; and

WHEREAS, Additional funding in the amount of $151,000 has been requested for a total not-to-exceed contract of $932,600; and

WHEREAS, Additional funds needed for the work are available in Gas Tax Funds 225, 226, 227, 228, and 229.

NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ST. HELENA AS FOLLOWS:

SECTION 1. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 2. Authorizes the City Manager to execute Amendment No. 4 to STH Contract: FY 2019-075 in the amount of $151,000 to the Professional Services Agreement with BKF for the *Main Street St. Helena Pedestrian Improvements Project*, for a total not-to-exceed amount of $932,600.

SECTION 3. Authorizing a budget increase of $151,000 to design in CIP Project R18-81 and a transfer of the same from Gas Tax Funds to Streets Capital (Fund 741).

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Council Member Anna Chouteau: _____

Council Member Lester Hardy: _____

Council Member Billy Summers: _____

APPROVED: ATTEST:

_____ _____

Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

January 25, 2023
Updated February 24, 2023
BKF No 20181627

Joe Leach, PE
Director of Public Works
City of St. Helena
Direct: 707-968-2629
Transmitted via email: jleach@cityofsthelena.org

Subject: **St. Helena Downtown Sidewalk Improvements**
Additional Scope of Work – Phases Project

Dear Joe,

BKF Engineers welcomes the opportunity to submit this proposal for additional services associated with the Main Street Project located in the City of St. Helena, California. To arrive at the estimated effort required by our office for this project, we have outlined a proposed scope of services, identified assumptions, and determined a level of effort fee based on our understanding of the project.

SCOPE OF SERVICES

We understand your desire to separate the plans into separate packages along with additional ancillary work associated with the improvements.

Base Scope Items Include:

1. **Separate PS&E (Plans, Specifications, and Estimate) Packages.** Based on the funding of the project, we understand that the City desires to create a separate PS&E package for Phase 2 so that the project could be procured separately. This includes separating the Plans and Specifications into two packages along with providing two separate engineers estimates.

2. **Sewer Design.** We understand that the City has determined that they will replace sewer laterals between the existing buildings and the curb. BKF will document these sewer replacements.

3. **Tree/Curb Zone Design Alternative.** Based on the relationship between some of the existing building finish floors and the existing Caltrans road surface elevation, the current design utilizes a steepened cross-slope between the accessible pedestrian zone and the curb. We understand the City's desire to study this zone to determine if alternative materials, steps, or planting could be used in lieu of concrete.

4. **Plat and Legal Descriptions**. With Amendment #3, we had estimated that 37 plat and legal descriptions would be necessary to complete the easement or right of way acquisition. Based on the right of way survey along the corridor, an additional eleven (11) plats and legal descriptions are needed to acquire the rights to construct the improvements.

5. **Separate Packages Bid Support.** We have allocated 40 hours of additional engineering support during the bidding of the project to answer questions from the bidders, assist in bid clarifications, and/or to prepare conform plans as separate bids/packages.

Additional/Optional Scope needed for Outreach and then to implement Bulbouts and enhanced work in the Caltrans ROW Include:

6. Outreach – see attached scope of work from DGA. BKF has allocated 10 hours to support these efforts.

7. Bulbouts - the Cultivate Downtown St Helena campaign included bulbouts. In order to implement the bulbout concepts, the following work is needed:

    a. Bulbouts design – demolition, grading, drainage, landscaping, and accessibility design for 2 unsignalized intersections and 2 signalized intersections.

    b. Traffic signal modifications – we have assumed that there will be minor work (push button poles) along the western edge of Main Street between Pope and Mitchell (as there are driveways along the eastern edge that limit access and the potential for bulbouts) and that, at the intersection of Adams Street, the entire traffic signal will need to upgraded to install bulbouts.

    c. Caltrans encroachment permit – we have included time to support filing the Caltrans encroachment permit for the bulbouts and traffic signal modification. We have assumed that with only one traffic signal modification, that the process will not trigger the DEER process with Caltrans.

LEVEL OF EFFORT

Below is a matrix indicating the fee based on the anticipated level of effort fee for each task:

Task	Description	BKF	DGA	Fee
1	Separate PS&E (2 phases) Packages	8,000	5,000	$13,000
2	Sewer Design	5,500		$5,500
3	Tree/Curb Zone Design Alternative & Improvement	12,000	10,000	$22,000
4	Additional Plats and Legal Description	13,200		$ 13,200
5	Separate Bid Support (2 phases)	5,000	3,000	$ 8,000
	SubTotal	**43,700**	**18,000**	**61,700**
6	Outreach	2,510	19,890	$22,400
7a	Bulbout Design	50,200	17,400	$65,600
7b	Adams Street Traffic Signal Modification and Pope/Mitchell Minor Modification	46,000		$46,000
7c	Caltrans Encroachment Permitting	15,000		$15,000
	SubTotal	**113,710**	**37,290**	**151,000**

Thank you for the opportunity to present this proposal. We look forward to assisting in completing this project. Please contact me at 650-280-0309 if you have any questions regarding our scope of services.

Respectfully,
BKF Engineers

Daniel Schaefer, PE
Principal/Vice President

GATES +ASSOCIATES | LANDSCAPE ARCHITECTURE · LAND PLANNING · URBAN DESIGN

February 24, 2023

Dan Schaefer
BKF Engineers
DSchaefer@bkf.com

Dear Dan,

Thank you for the opportunity to submit the following proposal for landscape architectural services for St. Helena Main Street in St. Helena.

Please call me with any questions you have. If the attached workscope is acceptable, please sign a copy of this letter and return to us for our files.

Sincerely,

Casey Case
President | Gates + Associates

SCOPE OF SERVICES

This agreement is made as of February 24, 2023 by and between Gates + Associates, (GATES) [California License No. 6032], a California corporation, and BKF (Client).

As provided in this Agreement, GATES will provide landscape architectural services for the following project (the "Project"):

St. Helena Main Street Improvements

- *a. Need scope/fee for providing public meetings (3)*
  - *i. Meetings are to provide context from the 2019 public engagement meetings to what has been incorporated into the current design*
  - *ii. Develop a strategy/plan that addresses replacing Main Street trees 3:1 w/ one in downtown and 2 others elsewhere in town.*
- *b. Confirm street tree replacement locations have been coordinated with sewer/water services*

2. Update scope/fee to include as "additional BKF/Gates scope":

- *a. Develop bulb-outs per Cultivate Downtown St Helena plan only within the Phase 2 (aka Adams to Mitchell) area*
- *b. Scope to include permitting through Caltrans*

I. BASIC SERVICES

A. Outreach Services

1. Facilitate (3) Public Meetings to summarize efforts to date, explain plans created in 2020 and strategize Main Street tree mitigation efforts.
2. Prepare Conceptual Mitigation Plans. Underground conflict review by others. *Does not include irrigation plans.*

B. Landscape Plans

1. Provide new Construction Document set for Main Street Plans to show bulb-outs per the Cultivate St. Helena plans within Phase 2
   - a. Planting Plan
   - b. Layout Plan
   - c. Irrigation Plan
   - d. Dimension Plan
   - e. Hydrozone Plan
   - f. Tree Plan
   - g. Notes and Legend
   - h. Landscape Details
2. Support processing through CalTrans

PRODUCTS:

Conceptual Tree Mitigation Plans
Phase 2 Bulb Out Revised Plans 60% and Final

MEETINGS:

Public Meeting (In-Person)	2 (A)
Public Meeting (Virtual)	1 (A)
Client / Project Team (Virtual)	3 (B)

II. ADDITIONAL CONDITIONS

A. Meetings

1. Attendance at the aforementioned meetings is included in the scope of work. This proposal assumes that each meeting is a maximum of four (4) hours.

2. Additional meetings are not in the scope of this proposal and would be billed at the hourly rates described in Item IV.

B. Client shall provide all existing information necessary for the completion basic services as described in this letter of agreement.

C. The work described in Item I shall be performed as one set of Construction Documents. Splitting the project into more than one phase of construction or more than one project may require an increase in the fee shown in Item IV.

D. Opinions of Probable Construction Cost prepared by GATES are approximate only and do not take into account future market conditions or contractor's bidding methods. GATES has no control over costs of labor, materials or equipment and GATES estimates cannot be guaranteed.

E. GATES is not responsible for means, methods, sequences, techniques and procedures of construction or for safety precautions associated with construction.

F. GATES will endeavor to coordinate the surface grading and drainage work with the work of the project Civil Engineer as part of this contract. Grading plans, area drains with rim elevations, underground piping, invert elevations and connections to the storm sewer system are to be shown by the project Civil Engineer and are not a part of this contract.

G. Regarding site lighting, GATES shall show light locations and assist with fixture selection. All electrical, structural and mechanical engineering shall be shown by other consultants. GATES will endeavor to coordinate its work with that of other consultants as part of this contract. All photometric studies per others.

H. Regarding site structures, GATES shall show design characteristics and configuration of these features. All structural engineering, if required, shall be by other consultants and are not included in this contract.

I. Regarding Geo Technical Soils Services, GATES will rely on soils reports and geo-technical information provided by client. Geotechnical services are not part of this contract.

J. Regarding Agency and City Submittals, GATES will provide electronic copies of plans to client / engineer or Architect for submittal. Coordination of City permitting not a part of this scope.

III. COMPENSATION FOR SERVICES

A. The fee for the services indicated in Item I of this proposal shall be:

A.	*Outreach Services*	$19,890
B.	*Landscape Plans*	$17,400
	TOTAL	$37,290
		+ reimbursables

B. For billing procedures, see Appendix A.

IV. ADDITIONAL SERVICES

A. Any extra services, including additional work or meetings, requested by the Client in addition to those indicated in this proposal shall be billed at the hourly rate listed below in addition to the fee indicated in Item III above.

Hourly Fees for Services of:	Rate Per Hour:
Partner	$205.00-$235.00
Principal	$195.00 - $205.00
Associate Principal	$180.00 - $195.00
Senior Associate	$165.00 - $185.00
Associate Planner	$165.00 - $185.00
Job Captain	$150.00 - $165.00
Planner	$135.00 - $155.00
Irrigation Designer	$195.00 - $205.00
Marketing Coordinator	$120.00 - $150.00
Administrative/Drafter	$120.00 - $150.00

Note: The hourly rates shown may be revised as described in Appendix A, but would not affect the amount of compensation shown in Item III.

B. Additional services shall include but are not limited to the following:

1. Revisions to the design following commencement of the Construction Documents Phase.
2. Additional meetings to those described above.
3. Preparation of front end (boilerplate) non-technical specifications.
4. Horticultural consulting and soils analysis.
5. Prepare a Preliminary Opinion of Probable Cost broken down into major categories.

Accepted by:

_____ Date: _____

Dan Schaefer,
BKF

APPENDIX A
TERMS AND CONDITIONS OF AGREEMENT BETWEEN CLIENT AND DAVID L. GATES AND ASSOCIATES, INCORPORATED

The following additional terms and conditions are appended to, and part of, the Agreement for professional services between Gates + Associates, Inc., (GATES) [California License No. 6032], a California corporation, and BKF (Client), dated February 3, 2023.

1. GATES will provide the Scope of Services as described. GATES agrees to perform the services set forth in this agreement, and Client agrees to pay for said services on the terms set forth in this agreement.
2. Additional Services not set forth in the Scope of Services include, but are not limited to, changes in the scope or detail of the work made at the request of Client; services made necessary by unforeseen conditions not disclosed to GATES at the time of entering into this agreement; and any other service performed by GATES not reasonably within the scope of the services envisioned at the time of entering into this agreement. All additions to the scope of work shall be in writing, and executed by the Client.
3. GATES's Fees shall be as described in the Scope of Services, plus Expenses. Expenses of consultants and other direct expenses shall be paid by the Client in the amount invoiced to GATES's plus ten percent (10%) for handling and indirect costs. These may include, but are not limited to irrigation consultants, printing and reproduction costs, mileage and travel costs, and other miscellaneous expenses.
4. Additional Services, requested and authorized by the Client, shall be paid on an hourly basis at the current standard scheduled rates below. GATES's hourly rate schedule may be adjusted on January 1 and July 1 of each year and shall apply for any services rendered after that date.

Hourly Fees for Services of:	Rate Per Hour:
Partner	$205.00-$235.00
Principal	$195.00 - $205.00
Associate Principal	$180.00 - $195.00
Senior Associate	$165.00 - $185.00
Associate Planner	$165.00 - $185.00
Job Captain	$150.00 - $165.00
Planner	$135.00 - $155.00
Irrigation Designer	$195.00 - $205.00
Marketing Coordinator	$120.00 - $150.00
Administrative/Drafter	$120.00 - $150.00

5. Invoices for Services and Reimbursables shall be provided by GATES each month and are payable upon receipt. You agree to review the invoice and ask any questions of GATES within ten (10) days of receipt. If we do not hear from you, the invoice shall be deemed proper and acceptable. If your

balance is not paid within thirty (30) days from receipt, the unpaid balance will accrue interest at ten percent (10%) per annum compounded daily until paid in full.

6. GATES reserves the right to suspend work in the event invoices are past due. GATES may recommence work when full payment is received, including collection costs, attorney fees, and other costs, or other satisfactory arrangements are made with the Client. If a delinquency by Client occurs and GATES chooses not to suspend work, no waiver or estoppel shall be implied or inferred. Client agrees and understands that if GATES decides to so suspend its work, GATES shall not be liable for any costs or damages, including but not limited to delay and consequential damages, to the Owner, Client, or any other third party, that may arise from or be related to such a work suspension. Client agrees to hold GATES harmless from and completely indemnify GATES from and against any and all damages, costs, attorney's fees, and/or other expenses which GATES may incur as a result of any claim by any person or entity arising out of such a suspension of work.
7. If any litigation, arbitration, or other legal action arising out of this contract ensues, the prevailing party shall be entitled to, without limitation, reasonable attorney's fees, collection expenses, expert fees, and costs.
8. This Agreement may be terminated by either Client or GATES by giving written notice at least thirty (30) days prior to the date of termination. In the event of such termination, Client shall pay GATES for Services and Reimbursable Expenses performed or incurred prior to the termination date, plus all costs and expenses directly attributable to such termination for which GATES is not otherwise compensated.
9. Plans, drawings and specifications or other writings or documents prepared or provided by GATES hereunder are prepared for specific use by the Client on this Project only. Client agrees not to use the whole or part of said plans, drawings, and specifications or other writings or documents prepared or provided by GATES for other projects or extensions to the Project or any other purpose without the express written consent of GATES. GATES shall provide Client with a reproducible set of drawings and specifications for its records. Client further agrees to hold GATES harmless from and indemnify GATES from and against any and all damages, losses, costs, and/or expenses, including attorney's fees, which GATES may incur as a result of a claim by any party or entity, arising out of an unauthorized use of said plans, drawings, specifications, and/or documents.
10. Client agrees that GATES's liability for negligence to Client shall be limited to the amount paid by Client hereunder for GATES's fees for Basic Services and Additional Services.
11. This Agreement represents the entire Agreement between Client and GATES. This Agreement may be amended only by a writing signed by both Client and GATES.
12. This contract shall be governed by the laws of the State of California and shall be deemed to have been entered into in Walnut Creek, California, regardless of where it is physically executed. If suit or arbitration is filed to enforce this contract, the parties consent to personal jurisdiction in the courts of Contra Costa County, State of California, and waive the right to have the suit brought in, tried in, or removed to any other judicial jurisdiction.

AMENDMENT #4
TO PROFESSIONAL SERVICES AGREEMENT WITH BKF ENGINEERS; STH CONTRACT NO: FY 2019-075 FOR PROFESSIONAL SERVICES FOR DOWNTOWN STREETSCAPE IMPROVEMENTS AS PART OF CAPITAL IMPROVEMENT PROJECT R18-81 FOR AN ADDITIONAL $146,000 FOR A TOTAL CONTRACT AMOUNT NOT-TO-EXCEED $932,600.00.

This Fourth Amendment to Professional Services Agreement STH Contract: FY 2019-075 dated December 11, 2018 ("Agreement") is made as of this 28th day of March, 2023 by and between the City of St. Helena, a municipal corporation ("City"), and BKF Engineers ("Consultant").

RECITALS

A. On December 11, 2018, the City and Consultant entered into the Agreement for Consultant to provide professional engineering and landscaping services in connection with the project described as St. Helena Downtown Improvements; and

B. On May 28, 2019, City Council authorized Amendment No. 1 in the amount of $74,100 to include fiber light pole coordination, a southern gateway study, input on the downtown restrooms, and additional environmental work as required by Caltrans to complete the downtown sidewalk improvements; and

C. On June 11, 2019, City Council authorized Amendment No. 2 in the amount of $32,500 to include the Napa Valley Vine Trait's Feasibility Study to bring the Vine Trail through St. Helena and a 50% cost share to complete the work for a total amended not-to-exceed amount of the agreement of $635,600; and

D. On December 14, 2021, City Council authorized Amendment No. 3 in the amount of $146,000 to segment the project plans into northern and southern segments, obtain title reports for both segments and prepare additional right-of-way exhibits for the northern segment only for a total not-to-exceed amount of the agreement of $781,600.

D. The Agreement's current Scope of Services do not include the funds or the additional work to complete the southern segment of the project for the completion of the full scope of Project R18-81; and

E. Additional funding in the amount of $151,000 has been requested for a total not-to-exceed contract of $932,600; and

F. The City of St. Helena and BKF Engineers now desire to amend the Agreement to include the additional funding necessary for the Consultant to provide additional Engineering and Landscaping Consulting Services for the Downtown Sidewalk Improvements, Capital Improvement Project R18-81.

AGREEMENT

NOW, THEREFORE, in consideration of the promises and of the mutual covenants and agreements herein contained, for good and valuable consideration, the adequacy of which is hereby acknowledged, the parties agree to amend the Agreement as follows:

1. Section 1. Basic Services

   Parties agree to amend Section 1, "Basic Services" of the Agreement to provide additional services, as outlined in Exhibit A, "Scope of Work" attached hereto.

2. Section 4.A Compensation and Method of Payment, is amended to read as follows:

   "Total compensation shall not exceed $932,600.00 ... "

Original Agreement Amount	$529,000.00
Amendment No. 1	$74,100.00
Amendment No. 2	$32,500.00
Amendment No. 3	$146,000.00
Amendment No. 4	$151,000.00
Total Compensation	**$932,600.00**

All other terms of the Agreement shall remain in full force and effect.

Entered as of the day and year first above stated.

CONSULTANT: BKF Engineers

Signatures of Authorized Persons:

By: _____

Print Name:_____

Title: _____

CITY OF ST. HELENA
a Municipal Corporation

By:_____

Print Name: Anil Comelo

Title: City Manager

APPROVED AS TO FORM:

_____
Ethan Walsh, City Attorney

ATTEST:

_____
Cindy Tzafopoulos, City Clerk

Attachments:
Exhibit A: "Scope of Services"
Exhibit B: "Compensation"

Exhibit A
Scope of Services

Exhibit B
Compensation

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration of A Resolution of the City Council of the City of St. Helena to Re-Affirm City Commitment to Housing Element for Regional Housing Need Assessment (RHNA), the Metropolitan Transportation Commission (MTC) adopted Resolution No. 4505 and Comply with State Housing Laws.**

CEQA Determination: **Not a CEQA project**

Prepared By: Eric Janzen, Assistant Public Works Director

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: Anil Comelo, City Manager

BACKGROUND

The City has been awarded funding for the Main Street St. Helena Pedestrian Improvements Project through the One Bay Area Grant (OBAG) program. The OBAG program requires the City to comply with current state housing laws including the Surplus Land Act (California Government Code § 54220 et seq.), Density Bonus Law (California Government Code § 65915 et seq.), and state laws related to ADUs and JADUs, including, but not limited to California Government Code §§ 65852.150, 65852.2, 65852.22, et seq. and California Health & Safety Code §§ 17980.12.

In order to comply with the OBAG program, the City is required to affirm by Resolution compliance with aforementioned laws.

DISCUSSION

On May 9th, 2017 the City Council approved Resolution 2017-57 which reaffirmed compliance with the Surplus Land Act. Since the passing of this resolution state housing laws have been amended to include new provisions. These new provisions have been incorporated into the OBAG program. In order to receive the funding awarded to the City

through the OBAG program, new resolution is required to affirm the City's compliance with the new laws.

FISCAL IMPACT

There is no fiscal impact associated with this report.

RECOMMENDED ACTION

Approve A Resolution of the City Council of the City of St. Helena to Re-Affirm City Commitment to Housing Element for Regional Housing Need Assessment (RHNA), the Metropolitan Transportation Commission (MTC) adopted Resolution No. 4505 and Comply with State Housing Laws.

ATTACHMENTS

Resolution_Compliance with Housing_Laws
Attachment B.OBAG_3_Local_Compliance_Checklist_Accessible
RESOLUTION.2017-57 Reaffirming Compliance with Surplus Land Act (Assembly Bill 2135)

A Resolution of the City Council of the City of St. Helena to Re-Affirm City Commitment to Housing Element for Regional Housing Need Assessment (RHNA), the Metropolitan Transportation Commission (MTC) adopted Resolution No. 4505 and Comply with State Housing Laws

Resolution No. 2023-

WHEREAS, the City of St. Helena is located within the San Francisco Bay Area region; and

WHEREAS, the San Francisco region has the highest housing costs in the United States; and

WHEREAS, the Bay Area produced less than 30% of the need for low- and moderate-income housing units from 2007-2014, and is on track to similarly underproduce low-income units during the 2015-2023 time period; and

WHEREAS, there are limited funding sources available to secure land for the construction of low- and moderate-income housing; and

WHEREAS, public lands can play a critical role in increasing the supply of land for affordable housing;

WHEREAS, accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs) provide an important option to increase the availability and affordability of housing, especially in existing, lower density neighborhoods; and

WHEREAS, density bonuses are an effective tool to increase the financial feasibility of housing and incentivize the creation of affordable housing; and

WHEREAS, the Metropolitan Transportation Commission adopted Resolution No. 4505, outlining the programming policy and project selection criteria for the One Bay Area Grant Program (OBAG 3), including certain requirements to access these funds;

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of St. Helena, State of California, as follows:

That the City of St. Helena agrees to comply with the terms of Surplus Land Act (California Government Code § 54220 et seq.), as exists now or may be amended in the future, including, but not limited to, AB 1255 (Rivas, 2019), which requires jurisdictions to compile and report annually an inventory of surplus lands to the California Department of Housing and Community Development; and.

That the City of St. Helena agrees to comply with state laws related to ADUs and JADUs, as it exists now or may be amended in the future, including, but not limited to California Government Code §§ 65852.150, 65852.2, 65852.22, et seq. and California Health & Safety Code §§ 17980.12; and

That the City of St. Helena agrees to comply with state Density Bonus Law (California Government Code § 65915 et seq.), as exists now or may be amended in the future; and

That the City of St. Helena warrant and represents that is in compliance with the aforementioned state housing laws and that there are no claims, actions, suits, or proceedings pending to the best of the City of St. Helena's knowledge, alleging violations of the state housing laws by the City of St. Helena.

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Council Member Anna Chouteau: _____

Council Member Lester Hardy: _____

Council Member Billy Summers: _____

APPROVED: ATTEST:

_____ _____

Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

One Bay Area Grant (OBAG 3) Checklist for Local Compliance with MTC Resolution No. 4505

Federal Program Covering FY 2022-23 through FY 2025-26

The intent of this checklist is to delineate the requirements for local jurisdictions and other eligible applicants included in the OBAG Grant Program (Resolution No. 4505), as adopted by MTC on January 26, 2022. This checklist is provided for informational purposes only.

Note that checklist items 1-4 do not apply to sponsors with no general plan or land use authority, such as CTAs or transit agencies under a Joint Powers Agreement (JPA) or special district. In all other cases, applicants that respond "NO" or "N/A" to any of the requirements below are encouraged to clarify their eligibility with MTC staff. Questions may be directed to Thomas Arndt via email to tarndt@bayareametro.gov, or by phone at (415) 820-7983.

1. Housing Element Certification	**YES**	**NO**	**N/A**
a. Has the jurisdiction submitted the latest Annual Housing Element Report to HCD by April 1, 2022?	☒	☐	☐
b. Does the jurisdiction acknowledge that the Annual Housing Element Report must be submitted to HCD each year through the end of the OBAG 3 program (FY26) in order to be eligible to receive funding?	☒	☐	☐
c. Does the jurisdiction acknowledge that their General Plan Housing Element must be certified by the California Department of Housing and Community Development (HCD) for 2023-31 RHNA by December 31, 2023?	☒	☐	☐
2. Compliance with State Housing Law	**YES**	**NO**	**N/A**
a. Does the jurisdiction acknowledge that they must adopt a resolution self-certifying compliance with state housing laws related to surplus lands, accessory dwelling units, and density bonuses (using the template resolution provided by MTC) by December 31, 2023?	☒	☐	☐
b. Does the jurisdiction acknowledge that they must maintain compliance with the Housing Accountability Act throughout the OBAG 3 program period?	☒	☐	☐

OBAG 3 Compliance Checklist – Local Applicants

3. Local Roadway Safety Plan	YES	NO	N/A
a. Does the jurisdiction acknowledge that they must complete a Local Roadway Safety Plan (LRSP) or equivalent safety plan, as defined by the California Highway Safety Improvement Program (HSIP) guidelines, by December 31, 2023?	☒	☐	☐
4. Local Streets and Roads	**YES**	**NO**	**N/A**
a. Does the jurisdiction have a certified Pavement Management Program (StreetSaver® or equivalent) updated at least once every three years (with a one-year extension allowed) and acknowledge that they must maintain certification throughout the OBAG 3 period?	☒	☐	☐
b. Does the jurisdiction acknowledge that they must fully participate in the statewide local streets and roads needs assessment survey, every other year?	☒	☐	☐
c. Does the jurisdiction provide traffic count data to MTC to support the Highway Performance Monitoring System (HPMS) on an annual basis, or as directed by MTC staff?	☒	☐	☐
5. Regional Complete Streets Policy	**YES**	**NO**	**N/A**
a. Does the jurisdiction acknowledge that it must comply with MTC's Complete Streets policy (MTC Resolution No. 4439)?	☒	☐	☐
b. Has the jurisdiction submitted a Complete Streets Checklist as part of all OBAG 3 project applications?	☒	☐	☐
6. Regional Project Delivery Requirements	**YES**	**NO**	**N/A**
a. Does the jurisdiction acknowledge that it must comply with the regional Project Delivery Policy and Guidance requirements (MTC Resolution No. 3606) in the implementation of the project, and that the jurisdiction must identify and maintain a Single Point of Contact for all projects with FHWA-administered funding?	☒	☐	☐

CITY OF ST. HELENA

RESOLUTION NO. 2017-57

Resolution Reaffirming Compliance with Surplus Land Act (Assembly Bill 2135)

RECITALS

A. The San Francisco region has the highest housing costs in the United States; and

B. The Bay Area produced less than 30% of the need for low- and moderate-income housing units from 2007-2014; and

C. There are limited funding sources available to secure land for the construction of low- and moderate-income housing; and

D. Public lands can play a critical role in increasing the supply of land for affordable housing; and

E. The Metropolitan Transportation Commission adopted Resolution 4202, outlining the programming policy and project selection criteria for the One Bay Area Grant Program (OBAG 2), including certain requirements to access these funds.

RESOLUTION

The City Council of the City of St. Helena hereby resolves as follows:

1. The City of St. Helena agrees to comply with the terms of the Surplus Land Act – Assembly Bill 2135 (California Government Code § 54220, et seq.), as exists now or may be amended in the future.

Approved at a Regular Meeting of the St. Helena City Council on May 9, 2017 by the following vote:

Mayor Galbraith:	Yes
Vice Mayor White:	Yes
Councilmember Dohring:	Yes
Councilmember Ellsworth:	Yes
Councilmember Koberstein:	Yes

APPROVED:

Alan Galbraith, Mayor

ATTEST:

Cindy Black, City Clerk

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration and proposed approval of a Resolution authorizing: (1) various scope amendments and budget transfers among the Streets Capital Improvement Program Projects, specifically: R21-02 Crosswalk Improvements on Main Street/Highway 29 at Pratt Avenue and Elmhurst Avenue; R21-04 Pope Street Crosswalk Improvements; R22-79 Pavement Restoration Year 2; R19-05 Grayson and South Crane Rehab which when implemented will have a total FY23 fiscal impact of approximately $798,806.98: (2) staff to execute the appropriate agreements, budget appropriations and transfers to effectuate the various Capital Improvement Program projects noted above; and (3) authorize the Director of Public Works to execute change orders not to exceed $475,000 in addition to the R22-79 Argonaut Construction contract.**

CEQA Determination: **Class I Categorical Exemption under Section 15301 of CEQA**

Prepared By: Mario Traverso, Public Works Assistant Engineer

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: Anil Comelo, City Manager

BACKGROUND

As public works continues to move forward with the Streets Capital Improvement Projects, staff is requesting various authorizations and adjustments in efforts to deliver projects efficiently and expeditiously. These authorizations and adjustments are necessary to reapportion funding sources to account for various cost savings, updated cost estimates, overlaps and oversights in project scopes, and necessary emergency work requests to promotion of efficient utilization of City resources and construction contracts.

DISCUSSION

City staff request the City Council to consider the following proposals:

Authorize expenditure and budget adjustment for R21-04 Pope Street Crosswalk Improvements

Project R21-04 is part of the current 5-year CIP and FY22/23 CIP budget. The scope of project R21-04 includes the replacement of the curb ramps at Pope Street and College Avenue, installation of RRFBs and updated striping. A significant portion of the scope of R21-04 is also included in the scope of the R22-79 Pavement Restoration project (overlap in project scope). City staff is self performing the construction management for a cost savings when compared to the current budget. Further, significant cost savings is realized by utilizing the current construction contract for project R22-79 to complete the remaining scope of project R21-04. These cost savings will allow $129,405 of Measure T funds to be reallocated to pavement restoration projects. Staff requests City Council to authorize project R21-04, adjust the budget for R21-04, and increase the budget for R22-79 accordingly.

R21-04 Pope Street and College Avenue	Current Budget 22/23	Proposed Budget
Design	$ 4,405	Self Perform by City Staff
Construction Management	$ 20,000	Self Perform by City Staff
Construction Contract	$ 200,000	$ 100,000
Contingency	$ 20,000	$ 15,000
Total	**$ 244,405**	**$*115,000**

*129,405 Measure T funds to be reallocated to pavement restoration

Funding Sources	
741 - Streets Capital Improvement - NVTA	$ 94,000
Gas Tax - SB1	$ 21,000
Total	**$ 115,000**

Authorize expenditure and budget adjustment for R21-02 Crosswalk Improvements on Main Street/Highway 29 at Pratt Avenue and Elmhurst Avenue.

Project R21-02 is part of the current 5 year CIP and FY22/23 CIP budget. The scope of project R21-02 includes the replacement of curb ramps at Pratt Avenue and Elmhurst Avenue, installation of RRFBs and updated striping. City staff requests authorization to solicit a proposal to complete this work as a change order to the existing R22-79 construction contract with Argonaut Constructors. All construction items in the scope of R21-04 are similar bid items provided through the competitive bidding process during the R22-79 Pavement Restoration project. City staff is self performing the construction management for a cost savings when compared to the current budget. Further, significant cost savings is realized by utilizing the current construction contract for project R22-79 to include project R21-02. These cost savings will allow $144,260 of Measure T funds to be reallocated to pavement restoration projects. Staff requests City Council to authorize

project R21-02, adjust the budget for R21-02, and increase the budget for R22-79 accordingly.

R21-02 Pratt Avenue and Elmhurst Avenue	Current Budget	Proposed Budget
Design	$ 14,286	Self Perform By City Staff
Construction Management	$ 25,000	Self Perform By City Staff
Construction Contract	$ 200,000	$ 100,000
Contingency	$ 20,000	$ 15,000
Total	**$ 259,268**	**$*115,000**

*144,260 Measure T funds to be reallocated to pavement restoration

Funding Sources	
741 - Streets Capital Improvement - TDA Grant	$ 50,000
Measure T	$ 65,000
Total	**$ 115,000**

Authorize a budget transfer for R22-79 Pavement Restoration Year 2

The City executes an annual pavement restoration project. During the budget preparation for FY22/23, the scope of the annual pavement restoration project (Pavement Restoration Year 2) was split over FY22/23 and FY23/24 over concerns of funding and staff capacity. Both funding and staff capacity issues were resolved and the City moved forward with the entire scope of the pavement restoration year 2 project. Additionally, the current budget provides for a complete and fully funded FY23/24 pavement restoration project. Staff is requesting a budget transfer to recombine the funding to reflect the current project and expenditures. This project is funded by Measure T and the funds are available.

R22-79 Pavement Restoration	Current Budget 2022-23	Current Budget 2023-24**	Actual Budget 2022-23
Design	$ *246,000	$ 132,300	Self Perform by City Staff
Construction Management	$ 60,000	$ 60,000	Self Perform by City Staff
Construction Contract	$ 400,000	$ 400,000	$ 1,157,192.50
Contingency	$ 40,000	$ 40,000	$ 173,578.88
Total	**$ 746,000**	**$ 500,000**	**$ 1,330,771.38**

* Double budget Item (Overlap)

** There is a separate FY23/24 Pavement Restoration Project currently funded at $1,050,000

Funding Sources	

Combination of FY 22/23 and FY 23/24 Measure T	$ 1,246,000.00
Additional Measure T*	$ 84,771.38
Total	**$ 1,330,771.38**

*This additional Measure T funding was apportioned at contract award, September 27, 2022.

Authorize a budget increase to the contract with Argonaut Constructors for the R22-79 Pavement Restoration Year 2

The contract for the construction of the R22-79 Pavement Restoration Year 2 is with Argonaut Constructors of Santa Rosa. The contract amount is $1,157,192.50. The project is currently proceeding and is anticipated to be on budget. Staff requests City Council to increase the budget for the current contract to absorb various items that the City has requested Argonaut to perform *in addition* to the original contract items of project R22-79. These additional Items include the emergency water main repair performed on Pope Street on January 19, 2023, the emergency sewer main repair performed on Main Street at Charter Oak on March 7th 2023, rehabilitation of the diagonal parking area on Railroad Avenue, additional work associated with the inclusion of project R21-04 and project R21-02 and a increase in bid item quantity for asphalt concrete which resulted from inadequate geotechnical investigation and asphalt section design. See the table below for details on expenditures and funding sources.

Item	Funding Source	Amount
Emergency Work - Pope St at College Ave	Water Enterprise - 561	$ 28,035.62
Emergency Work - Main St at Charter Oak	Sewer Enterprise - 571	$ *85,999.98
Railroad Avenue Parking Stall Paving	Napa Valley Railroad Reimbursement	$ 30,000.00
Field Directive - Additional Asphalt Quantities	Measure T	$ 100,000.00
R21-04	Gas Tax / Grant	$ 115,000.00
R21-02	Measure T / Grant	$ 115,000.00
Total Increase Requested		**$ 474,035.60**
Total Budget Requested -Total Contract Not to Exceed Requested		**$ 1,804,806.98**

*Contractor provided "not to exceed" quote, actual expense expected to be lower.

Include Grayson Avenue and Pratt Avenue in the current 5 Year Pavement Management Plan to be eligible for Measure T and SB1 (Gas Tax) apportionments.

The current *5 Year Pavement Management Plan*, adopted in early 2021, prescribes the specific streets which are eligible to receive Measure T and Gas Tax (SB1) funding. The *5 Year Pavement Management Plan* is revised on a biennial basis in conjunction with the City's participation with the *Pavement Technical Assistance Program* (PTAP). The City will be participating in PTAP in the summer of 2023, during which a new *5 Year Pavement Management Plan* will be prepared and presented for approval in the fall of 2023.

R19-05 *Grayson and South Crane Rehab* project is a CIP project that has been in development since 2019 and is part of the current 5 year CIP and the FY23/24 budget. South Crane Avenue is currently listed in the *5 Year Pavement Management Plan*, Grayson Avenue is not. The design for the Grayson Avenue portion of the project is shovel ready. Staff intends to include the Grayson Avenue portion as an addition to the scheduled FY23/24 Pavement Restoration Project which is anticipated to go into construction in the summer of 2023. Staff request City Council approve the inclusion of Grayson Avenue to the current *5 Year Pavement Management Plan* to be made eligible for Measure T and SB1 funding. Additionally, staff request that Pratt Avenue be included in the current *5 Year Pavement Management Plan* to continue to secure opportunities to continue rehabilitation efforts. These projects are funded by Measure T, the funds are available.

Authorize the *St. Helena Active Transportation and Safe Routes to Schools Plan* to be reported as a project in CalSmart to be made eligible for Gas Tax (SB1) and Measure T expenditure.

In 2020, the City commissioned GHD Engineers to prepare an Active Transportation and Safe Routes to School Plan. The plan provides a 15 item work plan detailing various safety improvements along the Spring Street and Madrona Avenue corridors within the City. These improvements, resulting from traffic engineering analysis, recommendations from Napa County Bike Coalition and community feedback, include installation of high visibility crosswalk striping, ADA accessible curb ramps and crossing warning devices such as RRFBs. The report was presented to the Active Transportation and Sustainability Committee on November 3, 2021. Staff was provided a copy of this work plan in August 2022, and incorporated the 4 high priority items into the scope of the R22-79 Pavement Restoration Year 2 project. Staff intends on incorporating the remaining 11 work plan items into the scope of the FY23/24 pavement restoration project. Staff requests that the 15 work plan items be listed as a project in CalSmart and be submitted to NVTA to be made eligible for funding through SB1 or Measure T. Engineers estimate: $50,000.

FISCAL IMPACT

Total FY23 fiscal impact is approximately $798,806.98, which will utilize $28,035.62 from Fund 561 - Water Enterprise, $85,999.98 from Fund 571 - Wastewater Enterprise fund balances, $184,771.38 from Fund 240 - Measure T, and reapportion $500,000 from R22-79 Pavement Restoration project FY 2023-24 budget to FY 2022-23 budget from Fund 240 - Measure T.

RECOMMENDED ACTION

Staff recommends City Council adopt the attached Resolution.

ATTACHMENTS

Attachment 1_ Resolution
Attachment 2_ Budget Excerpts

CITY OF ST. HELENA

RESOLUTION NO. 2023 -

Authorizing (1) expenditure and budget transfers for Capital Improvement Project R21-04; (2) expenditure and budget transfers for Capital Improvement Project R21-02; (3) a budget transfer for Capital Improvement Project R22-79; (4) the inclusion of Greyson Avenue and Pratt Avenue to the 5-Year Pavement Management Plan; (5) the Active Transportation and Safe Routes to School work plans items to be included in the SB1 and Measure T project lists (6) a budget increase to the contract with Argonaut Constructors for Capital Improvement Project R22-79; (7) the Director of Public Works to approve Change Orders to the R22-79 contract with Argonaut Constructors not to exceed 1,804,806.98; (8) a Water Fund budget increase of $28,035.62 and use of Water Operations Fund balance of the same; (9) a Wastewater Fund budget increase of $85,999.98 and use of Wastewater Fund Balance of the same; (10) a Measure T Fund budget increase of $184,771.38 to Streets Capital (Fund 741) and use of Fund Balance of the same; (11) reapportion of $500,000 from R22-79 Pavement Restoration project FY 2023-24 budget to FY 2022-23; and (12) determining the requests to be exempt from the requirements of the California Environmental Quality Act.

RECITALS

A. The City of St. Helena Public Works is responsible for the delivery of the Capital Improvement Program; and

B. The City of St. Helena Public Works is committed to promote strategies for the effective and efficient utilization of City resources; and

C. Budget adjustments, transfers and increases are necessary to reconcile the budget to a revised delivery strategy, revised estimates, actual expenditures, and expenses incurred in response to City directed emergency work; and

D. These authorizations and adjustments are necessary to reapportion funding sources to account for various cost saving updated cost estimates, overlaps and oversights in project scopes, and necessary emergency work requests to promotion of efficient utilization of City resources and construction contracts.

RESOLUTION

The City Council of the City of St. Helena hereby resolves as follows:

1. Authorizing the Director of Administrative Services to perform the requested budget transfers and updates to the Measure T and SB1 project lists; and
2. Authorizing the Active Transportation and Safe Routes to School work plans items to be included in the SB1 and Measure T project lists; and
3. Authorizing the Director of Public Works to approve change orders not to exceed $475,000 in addition to the existing R22-79 budget and contract with Argonaut Constructors; and
4. Authorizing a Water Fund budget increase of $28,035.62 and use of Water Operations Fund balance of the same; and
5. Authorizing a Wastewater Fund budget increase of $85,999.98 and use of Wastewater Fund Balance of the same;
6. Authorizing a Measure T Fund budget increase of $184,771.38 to Streets Capital (Fund 741) and use of Fund Balance of the same;
7. Approving reapportion of $500,000 from R22-79 Pavement Restoration project FY 2023-24 budget to FY 2022-23 budget; and
8. All work identified in this resolution is categorically exempt from the California Environmental Quality Act, pursuant to CEQA Guidelines section 15301, Existing Facilities Class 1 which exempts the operation, repair, maintenance, and permitting of existing facilities involving negligible or no expansion of use including publicly owned utilities.

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Councilmember Anna Chouteau: _____

Councilmember Lester Hardy: _____

Councilmember Billy Summers: _____

APPROVED: ATTEST:

Paul Jamison Dohring, Mayor

Cindy Tzafopoulos, City Clerk

Pavement Restoration FY22 Design/FY 23 Construction

Project No: R22-79

Category: Streets

Project Location: St. Helena, CA 94574

Responsible Department:



PROJECT PURPOSE & DESCRIPTION: Rehabilitate streets throughout the City with various surface treatments (i.e. slurry seal, micro-surface, and overlay). Curb ramp upgrades may be part of projects as needed. Council approved a five-year list of streets on February 13, 2018.

Design FY 22

Construction FY 23

EXPENDITURE ACCOUNTS: **Fund**: 741 **Dept:** 5014

EXPENDITURES	Total YTD 05/16/22		2022-23	2023-24	2024-25	2025-26	2026-27	PROJECT TOTAL
3110 - Design			120,000					120,000
3150 - Construction Management			60,000	60,000				120,000
3160 - Construction Contract			400,000	400,000				800,000
3170 - Contingency			40,000	40,000				80,000
EXPENDITURE TOTALS			620,000	500,000				1,120,000
FUNDING SOURCES								
101-General Fund - Measure T/RMRA MOE								0
230-Gas Tax								0
230-Gas Tax - RMRA/SB1			60,000	60,000				120,000
240-Measure T			560,000	440,000				1,000,000
741-Streets Capital Improvement - Measure T Loan								0
FUNDING TOTALS			620,000	500,000				1,120,000

Pavement Restoration FY23 Design/FY 24 Construction

Project No: R23-79

Category: Streets

Project Location: St. Helena, CA 94574

Responsible Department:



PROJECT PURPOSE & DESCRIPTION: Rehabilitate streets throughout the City with various surface treatments (i.e. slurry seal, micro-surface, and overlay). Curb ramp upgrades may be part of projects as needed. Council approved a five-year list of streets on February 13, 2018.

Design FY 23

Construction FY 24

EXPENDITURE ACCOUNTS: **Fund**: 741 **Dept**: 5014

EXPENDITURES	Total YTD 05/16/22		2022-23	2023-24	2024-25	2025-26	2026-27	PROJECT TOTAL
3110 - Design			126,000					126,000
3150 - Construction Management				126,000				126,000
3160 - Construction Contract				840,000				840,000
3170 - Contingency				84,000				84,000
EXPENDITURE TOTALS			126,000	1,050,000				1,176,000
FUNDING SOURCES								
101-General Fund - Measure T/RMRA MOE								0
230-Gas Tax								0
230-Gas Tax - RMRA/SB1								0
240-Measure T			126,000	1,050,000				1,176,000
FUNDING TOTALS			126,000	1,050,000				1,176,000

Pope Street Crosswalk Improvements at College Avenue

Project No: R21-04

Category: Streets

Project Location: Pope Street at College Avenue

Responsible Department:



PROJECT PURPOSE & DESCRIPTION: Installation of a rectangular rapid flashing beacon system (or equivalent) located on Pope Street at College Avenue, four ADA compliant curb ramps, and continental crosswalk markings on Pope Street and College Avenue.

Installation of the rapid flashing beacon (or equivalent) will provide greater visibility of pedestrians within the crosswalks as vehicles approach. Upgrading curb ramps will improve pedestrian mobility by upgrading curb ramps when crossing Pope Street or College Avenue.

EXPENDITURE ACCOUNTS: Fund: 741 **Dept:** 5014

EXPENDITURES	Total YTD 05/16/22		2022-23	2023-24	2024-25	2025-26	2026-27	PROJECT TOTAL
3110 - Design	25,595		4,405					30,000
3150 - Construction Management			20,000					20,000
3160 - Construction Contract			200,000					200,000
3170 - Contingency			20,000					20,000
EXPENDITURE TOTALS	25,595		244,405					270,000
FUNDING SOURCES								
230-Gas Tax	25,595		150,405					176,000
741-Streets Capital Improvement - NVTA			94,000					94,000
FUNDING TOTALS	25,595		244,405					270,000

Crosswalk Improvements on Main Street/Highway 29 at Pratt Avenue and Elmhurst Avenue

Project No: R21-02

Category: Streets

Project Location: Main Street/Highway 29

Responsible Department:



PROJECT PURPOSE & DESCRIPTION: This project will upgrade curb ramps as well as improvement crosswalk markings and signage at Pratt and Elmhurst intersections.

EXPENDITURE ACCOUNTS: **Fund:** 741 **Dept:** 5014

EXPENDITURES	Total YTD 05/16/22		2022-23	2023-24	2024-25	2025-26	2026-27	PROJECT TOTAL
3110 - Design	19,286		14,286					33,572
3150 - Construction Management			25,000					25,000
3160 - Construction Contract			200,000					200,000
3170 - Contingency			20,000					20,000
EXPENDITURE TOTALS	19,286		259,286					278,572
FUNDING SOURCES								
240-Measure T	19,286		209,286					228,572
741-Streets Capital Improvement - Grant TDA III			50,000					50,000
FUNDING TOTALS	19,286		259,286					278,572

Report to the City Council
Regular City Council - 25 Apr 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Quarterly Grant Report for FY 2023 Q3, for the period ending March 31, 2023**

CEQA Determination: **Not a CEQA project**

Prepared By: Martin Beltran, Senior Management Analyst

Reviewed By: April Mitts, Assistant City Manager

Approved By: Anil Comelo, City Manager

BACKGROUND

This report covers grant activity for the 3rd Quarter of Fiscal Year (FY) 2023.

DISCUSSION

New Awarded Grant Applications in FY 2023 3rd Quarter

The City of St. Helena received one new grant award during 3rd Quarter of Fiscal Year 2023.

Agency	Project	Award
CalOES - HMGP: Wastewater Treatment Plant Backup Power	Wastewater Treatment Plant Emergency Backup Power *	$728,438

HMGP: Wastewater Treatment Plant Backup Power - Funding would be used to purchase and install emergency backup power at the Wastewater Treatment Plant that would provide sufficient power to the newly designed plant upgrade during power outages. The total project amount is estimated at $971,250, with $728,438 requested in grant funding and $242,812 as a required City match.

Applications Pending

The City currently has 5 applications pending.

Agency	Project	Amount
CDBG - Housing Rehabilitation Program	Owner-Occupied Rehabilitation (OOR) Program	$500,000
CDBG - Rental Subsistence Program	Rental assistance for low- to moderate-income households	$500,000
CDBG - Sewer Lateral Replacement Project	Sewer Lateral Replacement Project associated with Downtown Streetscape	$500,000
CalOES - HMGP: Emergency Backup Power	City Hall and Police Department Emergency Backup Power	$452,791
CDBG - Hunt's Grove Parking Lot	Expansion and improvements for Hunt's Grove parking lot.	$200,000

CDBG: Housing Rehabilitation Program - The funding will be used to continue the Owner-Occupied Rehabilitation (OOR) Program to assist low-income homeowners whose primary residence is in need of repairs, improvements, or reconstruction necessary to meet federal, state, or local building codes and for correction of all health and safety deficiencies. The program would be managed in collaboration with the Napa Housing Authority.

CDBG: Public Services - Rental Subsistence Program - The City would partner would UpValley Family Centers to identify low- to moderate-income households that are in need of rental assistance.

CDBG: Economic Development - Sewer Lateral Replacement Project - Sewer Lateral Replacement Project associated with Downtown Streetscape.

HMGP: City Hall and Police Department Emergency Backup Power - Funding would be used to purchase and install emergency backup power for City Hall and Police Department that would provide provide sufficient power to an essential City facility both for emergency use and regular operations during power outages. The amount of $452,791 was requested in grant funding and $150,930 is the required City match.

CDBG: Hunts Grove Parking Lot Project - Funds will be used to expand and improve parking for Hunt's Grove Apartments to create space for an additional 12 parked cars. The total amount of requested funding is $200,000. This project is currently on a waiting list.

Active Grants

These are grant awards with signed agreements. This chart identifies the grant award, required match, and percent expended. Staff is currently managing $6.5 million in active grant funds.

Grant	Project	Award Amount	Additional Project Funding	% Grant Funds Expended	Notes
CDBG - Public Services	Community Wellness and Mental Health Program	$498,281		0.0%	
CDBG - Economic Development	Business Assistance Program	$500,000		0.0%	
CalOES - HMGP Defensible Space/Fuel Management	Phase I - Defensible Space and Hazardous Fuels Reduction	$122,250		33.0%	Staff and Consultant are currently working on tasks outlined in Phase I. Once completed, the deliverables will be submitted to FEMA for review and approval.
CalOES - HMGP: Emergency Backup Power	City Corporation Yard and Crinella Pump Station	$257,380		0.0%	RFP was issued on March 30, 2023 with bid submittal deadline of May 4, 2023.
CENIC on behalf of Califia	Connection to CalRen Hub at St. Helena Public Library	Based on discounts applied - Received $4,011	$ -	100.0%	Received discounts in December 2021 and March 2022.
Department of Water Resources (DWR)	Comprehensive Flood Control Project	$2,371,333	$20,000,000	100.0%	The $237,148 retention was received in December

Grant	Project	Award Amount	Additional Project Funding	% Grant Funds Expended	Notes
					2022. Retention was held until Conservation Easement was completed.
Friends & Foundation	Enhancements for Library (PT Staff, Spanish/Youth/Adult Programs, Materials, Elsie the Cat, Supplies)	$144,288	$ -	41.6%	
Bulletproof Vest Partnership	Purchase of one bulletproof vest	$2,956	$ -	100.0%	
CalTrans/Federal - HSIP	Replacement of 125 lineal feet of guardrail on Silverado Trail that is located in the City limits of St. Helena	$70,000	$ -	100.0%	Construction is complete. Closing out project.
Housing and Community Development (HCD) - SB2 Planning Grant	Updates to current zoning code in order to implement housing policies and directives identified in the General Plan and in the 2015 Housing Element.	$160,000	$159,990	87.5%	Project continues to progress as scheduled.
HCD - Local Early Action Planning (LEAP) Grant	Housing Element update to facilitate compliance with the 6th Regional Housing Needs Allocation (RHNA) cycle.	$65,000	$ -	83.7%	Project continues to progress as scheduled.
Upper Valley Waste Management	Money Way Waste/Recycling Consolidation Project	$120,000	$ -	0.0%	Project is pending design approval.
HCD - HOME Investment Partnership	Funding to continue the Owner-Occupied	$500,000	$ -	0.0%	Housing Authority is working with applicants for

Grant	Project	Award Amount	Additional Project Funding	% Grant Funds Expended	Notes
Program: Program	Rehabilitation Program.				project approval
CDBG-CV1 - Childcare Scholarship Program	Provide childcare scholarships to income qualified families.	$74,484	$ -	100.0%	Reimbursement pending closeout paperwork.
CDBG-CV2 & 3 - Childcare Scholarship Program	Provide childcare scholarships to income qualified families.	$0.00	$ -	0.0%	An Amendment was approved to reallocate funds from the Child Care Scholarship Program to the Utility Assistance Program.
CDBG-CV2 & 3 - Utility Assistance Program	Provide utility assistance to St. Helena Residents.	$271,053	$ -	8.0%	HCD approved a Revision to extend the assistance to up to six months and increase the maximum dollar amount to $3,000 per eligible household.
State of CA - Department of Alcoholic Beverage Control	Minor Decoy, Shoulder Tap, and IMPACT Program.	$20,000	$ -	1.0%	
State of CA - Department of Justice	Funding for School Resource Officer.	$454,788	$ -	7.7%	
State of CA - Department of Parks and Recreation	Funding to Replace Crane Park Playground Equipment.	$177,952	$ -	0.0%	Preparing RFP

***Closed Out* Grants**

Grants	Project	Award Amount	Cash Match	% Grant Funds Expended	Notes
CalOES - PSPS Resiliency Allocation	Replace generator at Water Treatment Plant and purchase of a portable generator	$300,000	$ -	100.0%	Construction is complete.
SWRCB - CA Water and Wastewater Arrearages Payment Program	Relief for Water Arrearages incurred 03/04/2020 through 06/15/2021.	$114,344	$ -	100.0%	Closeout for final report is complete.

Flood Projects

Department of Water Resources (DWR) – City Council approved the conservation easement on October 12, 2021 and it was recorded on February 25, 2022. All necessary paperwork and documentation for closeout and release of retention was completed and on December 30 2022, the City received the $237,148 retention.

Non-Profit Grant Funding

The FY 2022/23 grant application period closed on February 18, 2022. The City received 20 applications with a total of $290,185 in funding requests. The Council working group met on March 30, 2022 to review the applications and made funding recommendations. Funding recommendations were presented to City Council at the budget workshop meeting on May 17, 2022.

A total of 19 non-profit grant applications were approved for the FY 2022/23 grant period for a total of $135,085. The chart below identifies the grant type, grantee, project description, award amount, and percent expended as of March 31, 2023.

Grantee	Project Description	Award Amount	Percent Expended
Cafeteria Kids Theater	Drama Summer Camps with CKT	$1,000	0.0%
Cinema Napa Valley	Sunset Cinema	$2,500	0.0%

Grantee	Project Description	Award Amount	Percent Expended
Collabria Care	UpValley Village 2022-23	$10,000	0.0%
Friends of the Cameo	Looking Up: A Pre-Independence Day Community Celebration	$8,250	0.0%
Mentis	Mental Health Treatment Services	$15,000	0.0%
Napa County Bicycle Coalition	St. Helena Safe Streets Champions	$5,500	22.4%
Nimbus Arts	2022 Dia de los Muertos	$5,000	0.0%
Our Town St. Helena	Pope Street Workforce Village: Phase 2 Predevelopment	$10,000	0.0%
St. Helena Catholic Church	Additional Food Cards for Families in Need	$10,000	0.0%
St. Helena Community Garden	St. Helena Community Garden	$2,460	0.0%
St. Helena Cooperative Nursery	St. Helena Cooperative Nursery School	$10,000	0.0%
St. Helena Farmers Market	Market Match Program	$8,775	63.7%
St. Helena Fire Safe Council	St. Helena Wildfire Preparedness & Prevention Community Outreach and Education	$7,500	0.0%
St. Helena Historical Society	Showcasing the Hispanic Settlement of the St. Helena Region of Napa Valley	$10,000	0.0%
St. Helena Little League	SHLL Uniforms & Equipment	$7,500	0.0%
St. Helena Preschool for All	St. Helena Preschool for All Scholarships	$10,000	100%
Sustainable St. Helena	St. Helena Redwood Forest – Founders Tree	$4,000	100%

Grantee	Project Description	Award Amount	Percent Expended
The White Barn	The White Barn 2022-2023 Season	$2,600	0.0%
Up Valley Family Centers	Active Kids/Ninos Activos	$5,000	0.0%
TOTALS		**$135,085**	**15.4%**

Direct funding was allocated to the Boys and Girls Club, Rianda House, and UpValley Family Centers outside of the Non-Profit Grant Program. The recommended funding modifications were made to keep the overall contributions at current levels of approximately $210,000 with $90,000 allocated to Boys and Girls Club, Rianda House and UpValley Family Centers were allocated $30,000 each.

The FY 2023/24 grant application period closed on February 24, 2024. The City received 22 applications with a total of $239,317 in funding requests. The Council working group met on March 24, 2023 to review the applications and made funding recommendations. Funding recommendations will be presented to City Council at the budget workshop meeting on June 13, 2023.

FISCAL IMPACT

There is no fiscal impact associated with this report.

RECOMMENDED ACTION

Receive and file report.

Report to the City Council
Regular City Council - 23 May 2023

Agenda Section: **CONSENT ITEMS**

Subject: **Consideration and Proposed Adoption of a Resolution Adopting a list of Projects for Fiscal Year 2023-24 funded by SB1: The Road Repair and Accountability Act of 2017.**

CEQA Determination: **Exempt from the requirements of CEQA pursuant to Section 15301, Class 1, which exempts the operation, leasing, or minor alteration of existing facilities**

Prepared By: Mario Traverso, Public Works Assistant Engineer

Reviewed By: April Mitts, Assistant City Manager

Approved By: Anil Comelo, City Manager

BACKGROUND

On April 28, 2017, the Governor signed Senate Bill (SB) 1, the Road Repair and Accountability Act of 2017. SB 1 increases per gallon fuel excise taxes; increases diesel fuel sales taxes and vehicle registration fees; and provides for inflationary adjustments to tax rates in future years. A percentage of the Road Maintenance and Rehabilitation Account (RMRA) account funding is apportioned by formula to eligible cities and counties pursuant to Streets and Highways Code Section 2032(h) for basic road maintenance, rehabilitation, and critical safety projects on the local streets and roads system.

Prior to receiving an apportionment of RMRA funds in FY 2023-24, the City is required to submit to the California Transportation Commission a list of projects proposed to be funded in FY 2023-24 by July 1, 2023. The list of projects proposed to be funded with these funds shall include:

- A description of the project;
- The location of each proposed project;
- A proposed schedule for the project's completion; and
- The estimated useful life of the improvement.

DISCUSSION

The City must adopt by resolution a list of projects proposed to receive fiscal year funding from the RMRA. This is the fourth year in which the City is receiving SB 1 funding and will enable the City to continue essential road maintenance and rehabilitation projects, safety improvements, repairing and replacing aging bridges, and increasing access and mobility options for the traveling public that would not have otherwise been possible without SB 1. The City is recommending continuing the Downtown Sidewalk and Pedestrian Project and adding the Napa Valley Vine Trail: Gap Closure Yountville to St. Helena Project and the Rectangular Rapid Flash Beacon (RRFB) for Pratt and Elmhurst Intersection Improvements to the FY 2023-24 project list.

The recommended action to adopt the project list will ensure the City continues to receive SB 1 revenues. It is anticipated that the City will receive approximately $125,000 during FY 2023-24. The SB 1 funds do carryover from year to year and any unused funds can be spent on other City funded projects in accordance with local needs and priorities so long as the projects are consistent with SB 1 and adopted by City Council.

Staff recommends that City Council approve the SB 1 street project list for FY 2023-24 in order to meet the July 1, 2023 deadline.

FISCAL IMPACT

SB 1 requires the City to provide an annual general fund Maintenance of Effort (MOE) in the amount of $314,571. However, the MOE specific expenditures do not need to be reflected in the approved project list. The proposed FY 2023-24 Capital Improvements Plan Budget and proposed FY 2023-24 Operations Budget will include a total of $379,189 in General Funds for City Streets to meet the MOE requirement of both SB 1 and Measure T funding. There is no additional fiscal impact with the adoption of the resolution approving the RMRA Project List for FY 2023-24.

RECOMMENDED ACTION

Adopt a resolution adopting a list of projects for fiscal year 2023-24 funded by SB1: The Road Repair and Accountability Act of 2017.

ATTACHMENTS

Exhibit A - SB1 Project List
Resolution - SB 1 Project List

Project Details

Title	Description	Location	Component	Priority Status	Est. Schedule		Useful Life		Assem	Senate
					Start	Complete	Min	Max		
Downtown Sidewalk and Pedestrian Project	This project will include design and construction of the downtown sidewalk and pedestrial improvement project. Improvements include replacing sidewalks, curb ramps, bulb outs, landscape and utilites.	Main Street (Highway 29) from Mitchell Drive to Pine Street	Construction	Carried Over 22/23	Jun-23	Jun-24	15	30	4	3
Napa Valley Vine Trail: Yountville to St. Helena	This project will include design and construction of the Napa Valley Vine Trail. Improvemnts include the installation of pedestrian and bicycle facilities through the City of St. Helena corridor.	Main Street, Oak Avenue, Railroad Avenue	Planning	New	23-Jun	25-Jun	15	30	4	3
Pratt & Elmhurst Intersection Improvements	This project includes construction of pedestrian crossing and safety improvements including new curb ramps, striping, and installation of RRFBs.	Pratt Avenue, Elmhurst Avenue, Main Street	Construction	New	Jun-23	Dec-23	15	30	4	3

CITY OF ST. HELENA

RESOLUTION NO. 2023-

ADOPTING A LIST OF PROJECTS FOR FISCAL YEAR 2023/24 FUNDED BY SB1: THE ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017.

RECITALS

A. Senate Bill 1 (SB 1), the Road Repair and Accountability Act of 2017 (Chapter 5, Statutes of 2017) was passed by the Legislature and Signed into law by the Governor in April 2017 to address the significant multi-modal transportation funding shortfalls statewide; and

B. SB 1 includes accountability and transparency provisions that will ensure the residents of our City are aware of the projects proposed for funding in our community and which projects have been completed each fiscal year; and

C. The City must adopt by resolution a list of projects proposed to receive fiscal year funding from the Road Maintenance and Rehabilitation Account (RMRA), created by SB 1, which must include a description and the location of each proposed project, a proposed schedule for the project's completion, and the estimated useful life of the improvement; and

D. The City, will receive an estimated $125,000 in RMRA funding in Fiscal Year 2023- 24 from SB 1; and

E. This is the seventh year in which the City is receiving SB 1 funding and will enable the City to continue essential road maintenance and rehabilitation projects, safety improvements, repairing and replacing aging bridges, and increasing access and mobility options for the traveling public that would not have otherwise been possible without SB 1; and

F. The City has undergone a robust public process to ensure public input into our community's transportation priorities/the project list; and

G. The funding from SB 1 will help the City maintain and rehabilitate streets, roads, bridges, add active transportation infrastructure throughout the City this year and similar projects into the future; and

H. The 2018 California Statewide Local Streets and Roads Needs Assessment found that the City's streets and roads are in an at-risk condition and this revenue will

help the City increase the overall quality of our road system and over the next decade will bring our streets and roads into a good to excellent condition; and

I. The SB 1 project list and overall investment in our local streets and roads infrastructure with a focus on basic maintenance and safety, investing in complete streets infrastructure, and using cutting-edge technology, materials, and practices, will have significant positive co-benefits statewide; and

J. The project is exempt from the requirements of CEQA pursuant to Section 15301, Class 1, which exempts the operation, leasing, or minor alteration of existing facilities.

RESOLUTION

NOW, THEREFORE, the City Council of the City of St. Helena resolves as follows:

1. The foregoing recitals are true and correct; and
2. The following list of previously proposed projects in Exhibit "A" will be funded in-part or solely with fiscal year 2023/24 Road Maintenance and Rehabilitation Account revenues.

Approved at a Regular Meeting of the St. Helena City Council on May 23, 2023, by the following vote:

Mayor Dohring: _____
Vice Mayor Hall: _____
Councilmember Chouteau: _____
Councilmember Hardy: _____
Councilmember Summers: _____

APPROVED: ATTEST:

_____ _____
Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

Report to the City Council
Regular City Council - 27 Jun 2023

Agenda Section: **PUBLIC HEARINGS**

Subject: **Consideration and proposed adoption of resolutions as follows:**

1. **Consideration and proposed approval of a resolution accepting the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study Final Report; and**
2. **Consideration and proposed approval of a resolution approving**
    a. **Changes to the water base rates, water use rates, fire line rates, and rate structure effective September 1, 2023; and**
    b. **Changes to the wastewater base rates, wastewater use rates, and rate structure effective September 1, 2023; and**
    c. **Approving Drought Surcharges and rate structure effective September 1, 2023: and**
    d. **This Resolution shall take effect immediately. The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will occur every subsequent year on July 1st for the next (5) years as follows:**
        i. **September 1, 2023**
        ii. **July 1, 2024**
        iii. **July 1, 2025**
        iv. **July 1, 2026**
        v. **July 1, 2027**

CEQA Determination: **Not a CEQA project**

Prepared By: Mandy Kellogg, Administrative Services Director

Reviewed By: April Mitts, Assistant City Manager

Approved By: Anil Comelo, City Manager

BACKGROUND

The purpose of a Water and Wastewater Rate Study ("rate study") is to determine the level of funding required over the next five years to ensure that each utility is meeting financial obligations for ongoing operations and maintenance, debt service, and capital improvements while maintaining prudent reserves. Updating the water and wastewater rates to keep up with the rising costs of providing safe and high-quality drinking water and wastewater services is a key component of maintaining the financial viability of the utilities, including maintaining healthy fund balances/reserves for emergencies and applicable bond covenants, debt coverage ratios for bond covenants, and strong credit ratings. Updates to the rate study are also necessary to fund investments in infrastructure maintenance and improvements which are mandated or otherwise necessary for safe and efficient operation of the utilities.

California's Proposition 218 requires that rates be equitably apportioned and proportional to the cost of providing services. The rate study conducts a cost-of-service analysis, which evaluates the cost of providing water and wastewater and allocates those costs to rate structure components to ensure the proposed rates are aligned with the costs to provide service and that all customer classes are subject to the equitable cost recovery whether they are located inside or outside of City limits.

On March 25, 2022, the City Council approved a resolution authorizing the City Manager to execute a Professional Services Agreement with Raftelis Financial Consultants to provide services associated with a Water and Wastewater Rate Study based on their experience as one of the largest firms in California, and the country, specializing in financial, rate, and management consulting for water, wastewater, and stormwater utilities. In addition, Raftelis has assisted numerous agencies in California implementing conservation-based rate structures, with special consideration for climate variation, cyclical drought conditions, and long-term passive conservation.

The City's key objective of the current rate study is to minimize the growth of the rates while ensuring that sufficient funds are generated to provide for a stable and well-functioning water and wastewater system. To ensure that this objective is achieved, the City engaged a Water and Wastewater Rate Study Advisory Committee to collaborate in the following:

- Reviewing and confirming financing assumptions and options presented by staff and the consultant for CIP projects in the first five years of the Rate Study, giving due consideration to project prioritization (immediate need, and estimated cost) and the proper balance of using cash versus debt.

- Reviewing and confirming significant financial assumptions in the Study, such as reserves, adequacy of sinking funds, and designated and undesignated fund balances in accordance with generally accepted municipal financial principles.
- Review findings and recommendations to ensure equitable allocation of costs related to industrial, commercial, and residential users, rate models, and recommend appropriate rates and changes with consideration given to location, setting, special demands or unique conditions.

The Water & Wastewater Rate Study Advisory Committee participated in a total of eleven meetings to review materials related to the rate study and make recommendations to City Council regarding key components of the study.

In collaboration with the appointed members of the Water and Wastewater Advisory committee, Raftelis presented several recommendations pertaining to the Financial Plan, Cost of Service Analysis, and Rate Design to City Council on March 14, 2023, included here: March 14, 2023 Presentation of Water and Wastewater Rate Study Recommendations. City Council approved the recommendations, which are included in the Water and Wastewater Rate Study Final Report.

On May 9, 2023, the City Council accepted the Final Rate Study report and authorized staff to begin the Proposition 218 noticing.

Proposition 218 requires that notices be mailed to property owners at least 45 days before the scheduled public hearing. Notice to tenants are not required by law. The City mailed Proposition 218 notices to both affected property owners and tenants 46 days prior to the public hearing. In order to ensure a transparent and inclusive process, the City out notices in English and Spanish to all properties and exceeded the legal notice required by Proposition 218 by sending to tenants as well.

The City cannot impose the new rates if 50% plus one unique parcel protests are submitted to, and validated by, the City Clerk. Immediately after the close of the public hearing, the City Clerk will determine if a majority protest exists and report the results to the City Council. Any property owner or tenant may protest the rates, however only one protest per parcel may be counted. The City has 2,471 unique parcels with water accounts and 1,757 unique parcels with wastewater (sewer) accounts. If the City receives 1,237 letters of protest for water the 50% plus one threshold will be met and if the City receives 880 letters of protest for wastewater the 50% plus one threshold will be met.

DISCUSSION

Water Rate Study

Raftelis developed a water rate model to project financial calculations over the next ten fiscal years with projections shown in the Final Report through the five-year rate-setting period of FY 2027-28. This included inflationary assumptions, water connection growth projections, and projected water sales. In addition, a Water Enterprise Capital Improvement Plan was developed identifying $35.86 million in water improvement

projects to be rate funded with future cash and revenue bond proceeds, which is shown in Table 4-14: Water Capital Improvement Plan (page 43) in the Final Report. The proposed capital project funding is as follows:

Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
GO-Bond Funded	$ -	$302,400	$315,706	$327,702	$338,189	$349,011
Rate Funded	$ -	$ -	$ -	$ -	$ -	$726,366
Bond Funded	$ -	$3,019,940	$7,160,513	$11,502,580	$9,885,943	$1,931,474
Total Funded CIP	**$ -**	**$3,321,890**	**$7,476,219**	**$11,830,282**	**$10,224,132**	**$3,006,851**

In order to generate adequate revenue over the rate study period to fund the operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding, the following water rate adjustments are being proposed:

Descriptions	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Effective Month	Sept. 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
Rate Adjustments	28%	8%	8%	8%	8%

A cost-of-service analysis was conducted by Raftelis to allocate the revenue requirements to the different customer classes. In addition, Raftelis worked closely with City staff, the Water and Wastewater Rate Study Advisory Committee, and the City Council to evaluate potential changes to the existing rate structure, which included variable rate tiers and tier allotments. The proposed three-tier structure is defined by water source of supply from low cost to high-cost water. The sources in order of tiers are:

- Tier 1: Bell Canyon Surface Water
- Tier 2: Stonebridge Wells Groundwater
- Tier 3: Purchased Water from the City of Napa

The allotment in each tier represents the average available volume of water, per connection (or residential dwelling unit where master-metered), in normal supply conditions and are proposed as follows:

Tier 1	0 - 11 HCF*
Tier 2	12 - 15 HCF*
Tier 3	16+ HCF*

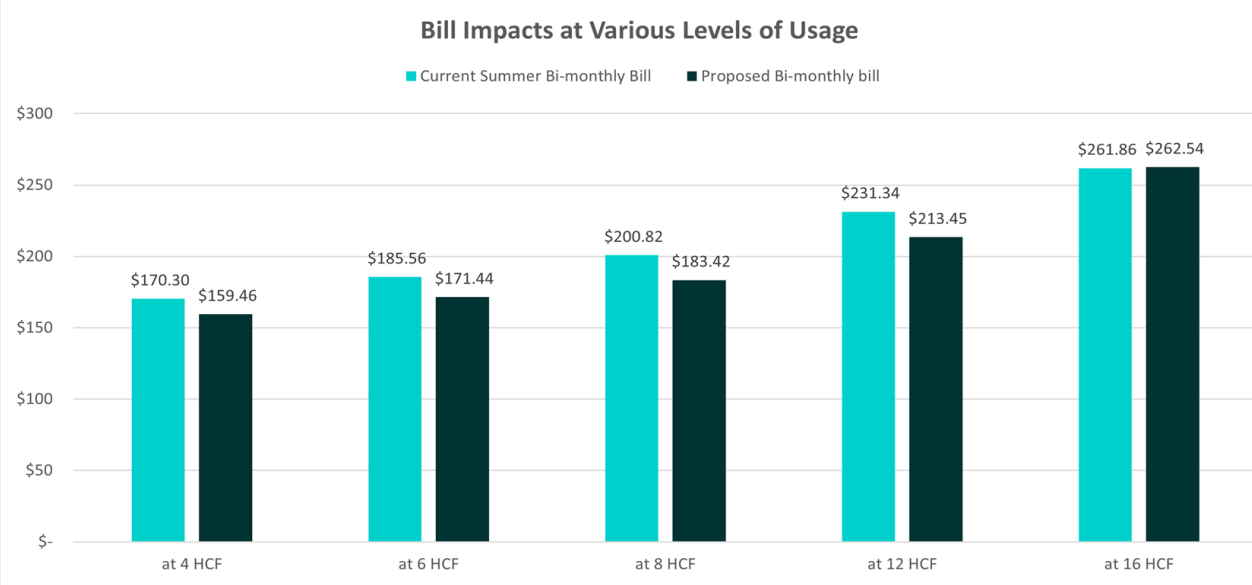
* One Hundred Cubic Feet (HCF) = 748.05 gallons

It is important to note that the allotment in each tier is per connection (or residential dwelling unit where master-metered).

The proposed Five-Year Water Rate Schedule is as follows:

Description	Current Rates	Proposed FY 2024	Proposed FY 2025	Proposed FY 2026	Proposed FY 2027	Proposed FY 2028
Bi-Monthly Fixed Charges						
Meter Size						
5/8"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
3/4"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
SFR 1"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
1"	$256.44	$288.70	$311.80	$336.75	$363.69	$392.79
1 1/2"	$451.28	$544.05	$587.58	$634.59	$685.36	$740.19
2"	$648.00	$850.46	$918.50	$991.98	$1,071.34	$1,157.05
3"	$1,309.44	$1,820.76	$1,966.43	$2,123.75	$2,293.65	$2,477.15
4"	$2,023.96	$3,250.68	$3,510.74	$3,791.60	$4,094.93	$4,422.53
6"	$3,963.26	$7,182.95	$7,757.59	$8,378.20	$9,048.46	$9,772.34
Fireline Size						
4"	$26.66	$116.78	$126.13	$136.23	$147.13	$158.91
6"	$77.46	$285.71	$308.57	$333.26	$359.93	$388.73
8"	$165.06	$586.82	$633.77	$684.48	$739.24	$798.38
Volumetric Charges - Water Use per Hundred Cubic Feet (HCF)						
All Customer Classes						
Tier 1: 0 - 11 HCF	$6.50	$5.99	$6.47	$6.99	$7.55	$8.16
Tier 2: 12 - 15 HCF	$7.23	$12.06	$13.03	$14.08	$15.21	$16.43
Tier 3: 16 or more HCF		$12.91	$13.95	$15.07	$16.28	$17.59

Below shows Single Family Residential estimated bill impacts for FY 2024 based on a 5/8" meter:



The new water rates will be effective September 1, 2023. The revenue generated from the rate increase will allow the City to generate sufficient revenue to meet bond covenants, rebuild reserve levels, fund critical capital improvements, and to fully water operations without using other city funds. Without the rate increase the City would be unable to fund the critical capital improvement projects outlined in the rate study.

Drought Rates

Water Shortage Surcharges Water shortage rates are designed to recover net revenue shortfalls during periods of reduced water sales due to mandatory water conservation. Raftelis analyzed the potential loss in revenue that would be incurred based on projected water use reduction in response to water restrictions during drought periods. The following chart shows the proposed five-year schedule of the Water Shortage Surcharges for FY 2024 through FY 2028.

Fiscal Year and Tier	Phase I	Phase II	Phase III
FY 2024			
Tier 1: 0 - 11 HCF	$0.89	$2.99	$5.97
Tier 2: 12 - 15 HCF	$1.79	$6.01	$12.02
Tier 3: 16 or more HCF	$1.92	$6.43	$12.87
FY 2025			
Tier 1: 0 - 11	$0.97	$3.23	$6.45

HCF			
Tier 2: 12 - 15 HCF	$1.94	$6.50	$12.99
Tier 3: 16 or more HCF	$2.08	$6.95	$13.90
FY 2026			
Tier 1: 0 - 11 HCF	$1.05	$3.49	$6.97
Tier 2: 12 - 15 HCF	$2.10	$7.02	$14.03
Tier 3: 16 or more HCF	$2.25	$7.51	$15.02
FY 2027			
Tier 1: 0 - 11 HCF	$1.14	$3.77	$7.53
Tier 2: 12 - 15 HCF	$2.27	$7.59	$15.16
Tier 3: 16 or more HCF	$2.43	$8.12	$16.23
FY 2028			
Tier 1: 0 - 11 HCF	$1.24	$4.08	$8.14
Tier 2: 12 - 15 HCF	$2.46	$8.20	$16.38
Tier 3: 16 or more HCF	$2.63	$8.77	$17.53

Wastewater Rate Study

Raftelis developed a water rate model to project financial calculations over the next ten fiscal years with projections shown in the Final Report through the five-year rate-setting period of FY 2027-28. This included inflationary assumptions and wastewater connection growth projections. In addition, a Wastewater Enterprise Capital Improvement Plan was developed identifying $16.30 million in water improvement projects to be rate funded with future cash and revenue bond proceeds, which is shown in Table 5-11: Wastewater Capital Improvement Plan (page 100) in the Final Report. The proposed capital project funding is as follows:

Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
GO-Bond Funded	$ -	$493,500	$1,563,181	$930,766	$291,218	$300,537
Bond Funded	$ -	$2,462,040	$537,960	$ -	$ -	$ -
Rate Funded	$5,699,800	$ -	$278,271	$892,762	$1,432,136	$1,417,372

Total Funded CIP	**$5,699,800**	**$2,955,540**	**$2,379,412**	**$1,823,527**	**$1,723,354**	**$1,717,909**

In order to generate adequate revenue over the rate study period to fund the operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding, the following wastewater rate adjustments are being proposed:

Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Effective Month	Sept. 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
Rate Adjustments	50%	4%	4%	4%	4%

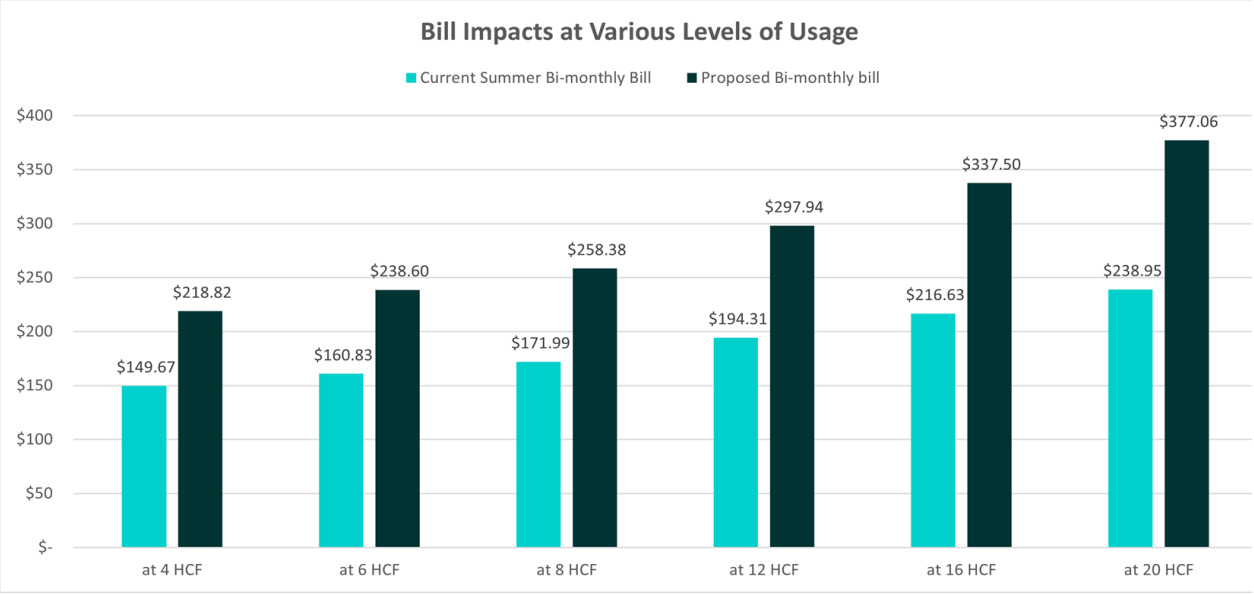
Raftelis performed a cost-of-service analysis for the Wastewater Enterprise, which is used to allocate the overall rate revenue requirement to customer classes based on their proportion of burden on the wastewater system. In addition, flow and strength loadings of the City's wastewater treatment plant is attributed to various user classifications.

The proposed Five-Year Wastewater Rate Schedule is detailed in the chart below.

Description	Current Rates	Proposed FY 2024	Proposed FY 2025	Proposed FY 2026	Proposed FY 2027	Proposed FY 2028
Bi-monthly Base Charges						
Residential						
Base Charge	$127.35	$179.26	$186.44	$193.90	$201.66	$209.73
Use Charge	$5.58	$9.89	$10.29	$10.71	$11.14	$11.59
Non-Residential						
Base Charge						
5/8"	$176.68	$250.51	$260.54	$270.97	$281.81	$293.09
1"	$441.72	$567.57	$590.28	$613.90	$638.46	$664.00
1 1/2"	$883.42	$1,096.00	$1,139.84	$1,185.44	$1,232.86	$1,282.18
2"	$1,413.48	$1,730.12	$1,799.33	$1,871.31	$1,946.17	$2,024.02
3"	$2,826.98	$3,738.16	$3,887.69	$4,043.20	$4,204.93	$4,373.13
4"	$4,417.14	$6,697.37	$6,965.27	$7,243.89	$7,533.65	$7,835.00
6"	$8,834.28	$14,835.22	$15,428.63	$16,045.78	$16,687.62	$17,355.13
Use Charge						
Car Wash	$3.86	$6.73	$7.00	$7.28	$7.58	$7.89
Religious Places/Commun	$4.29	$7.28	$7.58	$7.89	$8.21	$8.54

ity Centers						
Commercial	$5.07	$8.42	$8.76	$9.12	$9.49	$9.87
Groceries and Mortuaries	$13.62	$20.65	$21.48	$22.34	$23.24	$24.17
Laundry	$4.42	$7.46	$7.76	$8.08	$8.41	$8.75
Mixed Retail	$8.52	$13.50	$14.04	$14.61	$15.20	$15.81
Lodging with Food	$10.22	$15.83	$16.47	$17.13	$17.82	$18.54
Lodging without Food	$5.54	$9.00	$9.36	$9.74	$10.13	$10.54
Restaurant	$13.50	$20.30	$21.12	$21.97	$22.85	$23.77
Napa Valley College	$4.22	$7.18	$7.47	$7.77	$8.09	$8.42
Service Station	$5.83	$9.55	$9.94	$10.34	$10.76	$11.20
Winery Pre-Treated	$5.39	$8.87	$9.23	$9.60	$9.99	$10.39
Winery Non-Treated	$23.75	$34.27	$35.65	$37.08	$38.57	$40.12
Schools	$2.10	$7.18	$7.47	$7.77	$8.09	$8.42

Below shows Single Family Residential estimated bill impacts for FY 2024:



The new wastewater rates will be effective September 1, 2023. The revenue generated from the rate increase will allow the City to generate sufficient revenue to meet bond covenants, rebuild reserve levels, fund critical capital improvements, and to fully fund wastewater operations without using other city funds. Without the rate increase the wastewater fund is projected to have a negative fund balance within the next fiscal year.

This means that the City's General Fund would need to contribute funding to the wastewater enterprise fund in order to operate and maintain the wastewater system.

FISCAL IMPACT

There is no Fiscal Year 2022-23 impact associated with this report.

RECOMMENDED ACTION

Staff recommends the following to the City Council:

1. By resolution, accept the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study Final Report; and
2. Adopt a resolution approving:
    a. Changes to the water base rates, water use rates, fire line rates, and rate structure effective September 1, 2023; and
    b. Changes to the wastewater base rates, wastewater use rates, and rate structure effective September 1, 2023; and
    c. Approving Drought Surcharges and rate structure effective September 1, 2023: and
    d. This Resolution shall take effect immediately. The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will occur every subsequent year on July 1st for the next (5) years as follows:
        i. September 1, 2023
        ii. July 1, 2024
        iii. July 1, 2025
        iv. July 1, 2026
        v. July 1, 2027

ATTACHMENTS

Attachment 1 - Water and Wastewater Cost of Service and Rate Study Final Report
Resolution - Accepting Water and Wastewater Cost of Service and Rate Study Final Report
Resolution - Approving Revised Rate Schedules
Exhibit A - Water Rates Schedule
Exhibit B - Wastewater Rates Schedule
Exhibit C - Drought Surcharges Schedule
City of St. Helena Water and Wastewater Rate Study Presentation

ATTACHMENT 1

CITY OF ST. HELENA

Water and Wastewater Cost of Service and Rate Study

FINAL REPORT / APRIL 20, 2023

RAFTELIS

RAFTELIS

April 20, 2023

Ms. Mandy Kellogg
Administrative Services Director
City of St. Helena
1088 College Avenue
St. Helena, CA 94574

Subject: Water and Wastewater Cost of Service and Rate Design Study

Dear Ms. Kellogg,

Raftelis is pleased to provide this Water and Wastewater Cost of Service and Rate Design Study Report to the City of St. Helena. The purpose of the study was to develop a proposed five-year schedule of water and wastewater rates for Fiscal Year (FY) 2023-24 through FY 2027-28 that are cost-justified, consider the community's values, based on industry standard rate setting frameworks, and align with the substantive requirements of California's Proposition 218.

The primary objectives of the study included:

- Development of a ten-year financial plan for the City's Water and Wastewater Enterprises to ensure financial sufficiency, meet operating costs, fund long-term capital needs, and maintain prudent reserves
- Conduct water and wastewater cost of service analyses to ensure a nexus between proposed rates and the cost to provide services to customers
- Design drought surcharge rates for times of declared water shortages
- Develop five years of water and wastewater rates for adoption

This report details results and recommendations related to the development of the proposed financial plans, cost of service analyses, and proposed rate calculations. It has been a pleasure working with you and we thank you, City staff, the Rate Study Advisory Committee, City Council, and members of the community for the support provided to Raftelis during this study.

Sincerely,



Kevin Kostiuk
Senior Manager

445 S. Figueroa St, Suite 1925, Los Angeles, CA 90071
www.raftelis.com

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Appendices

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Appendix B: Wastewater Proposed Financial Plan 10-Year Pro Forma

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1. Executive Summary

1.1. Study Overview

Public water and wastewater utilities in California typically perform a cost of service analysis every five to ten years to ensure that customers are appropriately charged for service commensurate with the cost to provide service. The City of St. Helena (City) last conducted a water and wastewater cost of service study in 2016, which established proposed rates over a five-year period through Fiscal Year (FY) 2021-22. The City engaged Raftelis to conduct an updated water and wastewater cost of service study to establish an additional five-year schedule of water and wastewater rates. Proposed rates cannot be implemented until formally adopted by City Council after a public hearing, and absent a majority protest by parcels served by the City's water and wastewater system. Proposition 218 requires that City customers be postmarked a notice of the proposed rates and their rights to protest no fewer than 45 days before the public hearing.

The major objectives of this study are to:

- Develop a ten-year financial plan that sufficiently funds the City's water and wastewater operations and maintenance (O&M) expenses, debt service payments, and capital expenditures, while adequately funding reserves and achieving debt coverage requirements
- Conduct cost of service analyses that establish a nexus between the cost to serve water and wastewater customers and the rates charged, per Proposition 218 and industry standards
- Review the City's existing water and wastewater rate structures and recommend changes and rate alternatives to ensure that proposed rates achieve the financial and policy objectives of the agency to the greatest degree possible
- Develop a five-year schedule of water and wastewater rates that are fair, cost-justified, provide full revenue recovery, and align with Proposition 218
- Develop a five-year schedule of drought surcharge rates that consider the City's Water Emergency Plan

1.2. Rate Study Process

This study was conducted using industry-standard principles outlined by the American Water Works Association's Manual M1 and the Water Environment Federation's Financing and Charges for Wastewater Systems. The overall process outlined below applies to the development of both water and wastewater rates.

1. **Financial Plan:** Develop cash flow projections for the Water and Wastewater Enterprise to determine the amount of revenue required from water and wastewater rates to fully recover the costs of providing service.
2. **Cost of Service Analysis:** Allocate total costs to system components, and then to various user classes, based on unique characteristics.
3. **Rate Design:** Develop rates to different customers classes and sub-classes, based on cost of service, that generate sufficient revenues to recover costs, and communicate policy preferences of the agency.
4. **Administrative Record Preparation:** Develop an administrative record (this study report) to document the underlying inputs, assumptions, analyses, and results of the rate study.
5. **Rate Adoption:** Proposed rates may be adopted by City Council only after holding a public hearing in accordance with Proposition 218 requirements.

1.3. Proposed Water Financial Plan

Raftelis conducted a status quo cash flow analysis to evaluate whether existing water rates adequately fund the Water Enterprise's various expenses over a ten-year planning period. Annual projections of revenues, O&M expenses, debt service payments, and capital expenditures through FY 2031-32 were developed with City staff. Raftelis projects that with no rate increases over the study period, the Water Enterprise's reserves will fall below the target reserve policy and fail to meet minimum debt coverage in all years of the study period. Without revenue adjustments, fund balances are negative in every year of the study period and decrease greatly over time due to O&M and capital expenses. The exercise demonstrates a clear need for revenue adjustments (i.e. gross water rate revenue increases relative to existing rate revenues). Raftelis worked with City staff and the Water and Wastewater Rate Study Advisory Committee (RSAC) to develop the following proposed revenue adjustments over the five-year study period (see **Table 1-1**).

Table 1-1: Proposed Water Revenue Adjustments

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	Effective Month	Sept.[1] 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
2	Revenue Adjustments	28%	8%	8%	8%	8%

Key factors influencing the need for proposed revenue adjustments include:

- **Cost inflation:** Operating costs continue to increase year over year due to inflationary pressures.
- **Reduction in baseline water demand:** Water sales are significantly lower relative to pre-drought years, resulting in lower baseline variable water rate revenues.
- **Planned capital expenditures:** CIP project expenditures through FY 2031-32, including substantial repair and replacement (R&R) capital projects, total approximately $6.7M per year on average.

Figure 1-1 shows the proposed CIP financing plan over the study period. CIP is assumed to be funded by a mix of revenue bonds and rate revenue. The use of debt allows for lower rate increases over the long-term by financing significant capital reinvestment and repaying over a long time horizon.

[1] Due to the implementation schedule, if adopted new rates will become effective September 1, 2023. However, all financial plan outputs in this report represent the full fiscal year (July 1 start).

Figure 1-1: Water Capital Improvement Plan

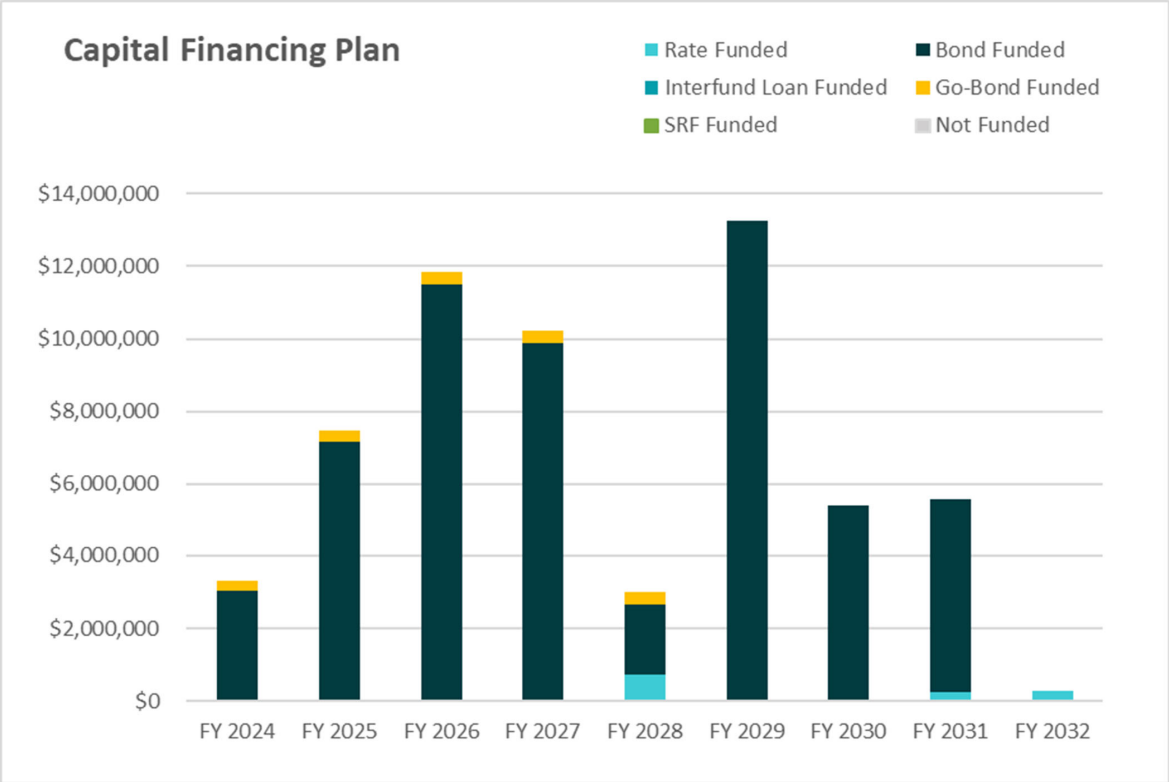


Figure 1-2 shows the proposed versus status quo Water Enterprise operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and light blue solid lines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding for CIP are represented by the various stacked bars. Revenue adjustments are required to generate additional revenue to recover O&M expenses and debt service payments over the study period while maintaining minimum debt coverage and reserve targets.

Figure 1-2: Proposed vs. Status Quo Water Financial Plan

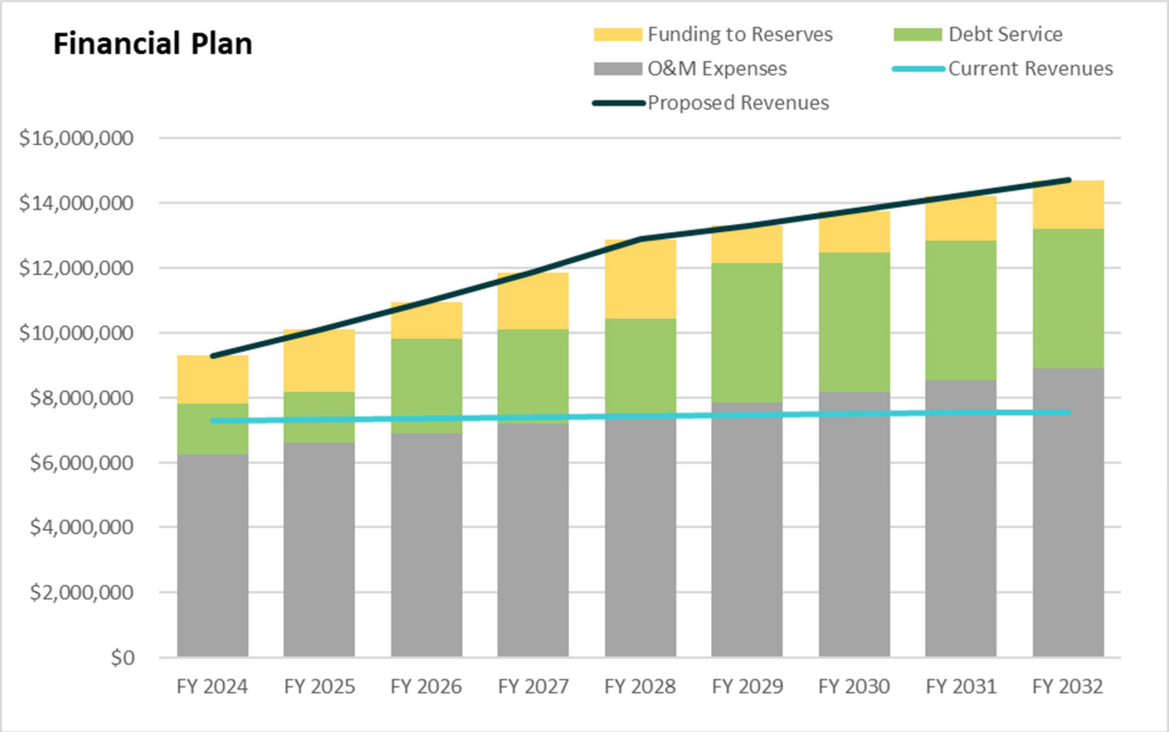


Figure 1-3 shows the Water Enterprise's projected fiscal year-end balance under the proposed financial plan. The light blue bars indicate the projected ending balance on June 30 of each year. The existing reserve targets are represented by the solid blue and yellow lines. The Water Enterprise is projected to increase its reserves through the study period. With the proposed rate increases and future debt issuances, the Water Enterprise's reserves are projected to achieve the existing reserve policy target at the end of the rate-setting period.

Figure 1-3: Proposed Water Financial Plan – Projected Ending Balances

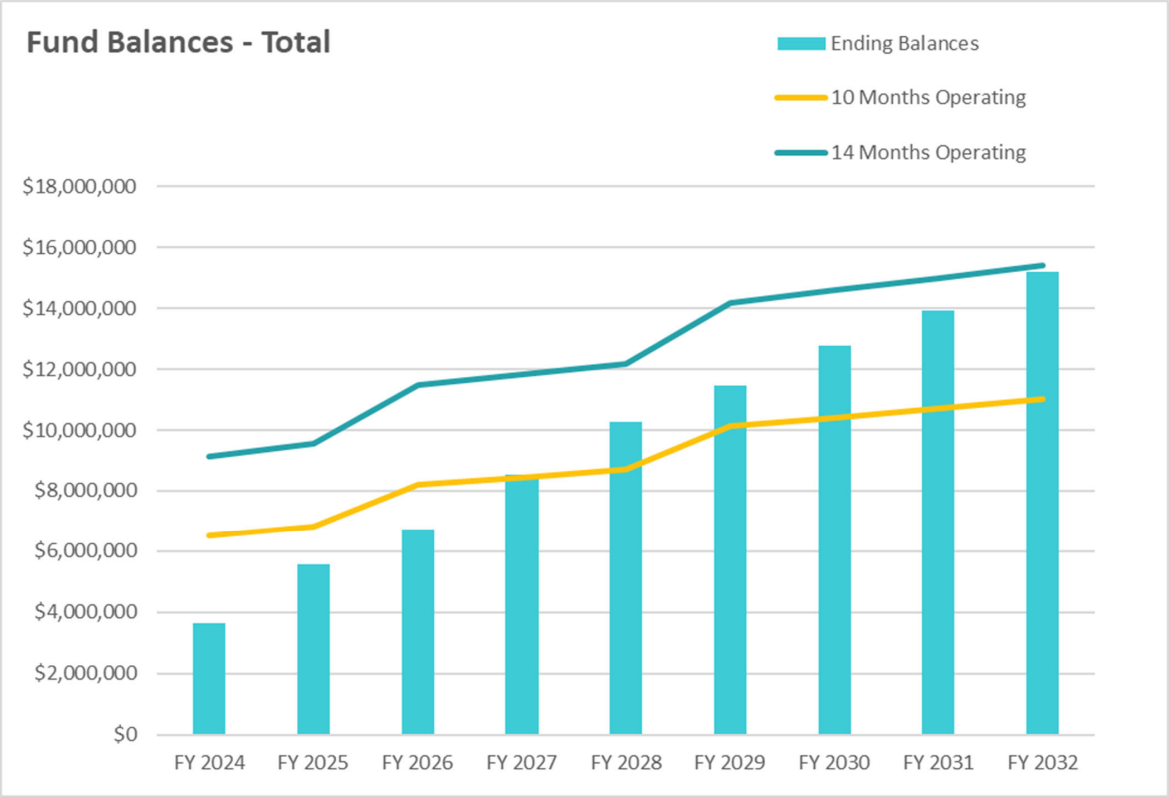
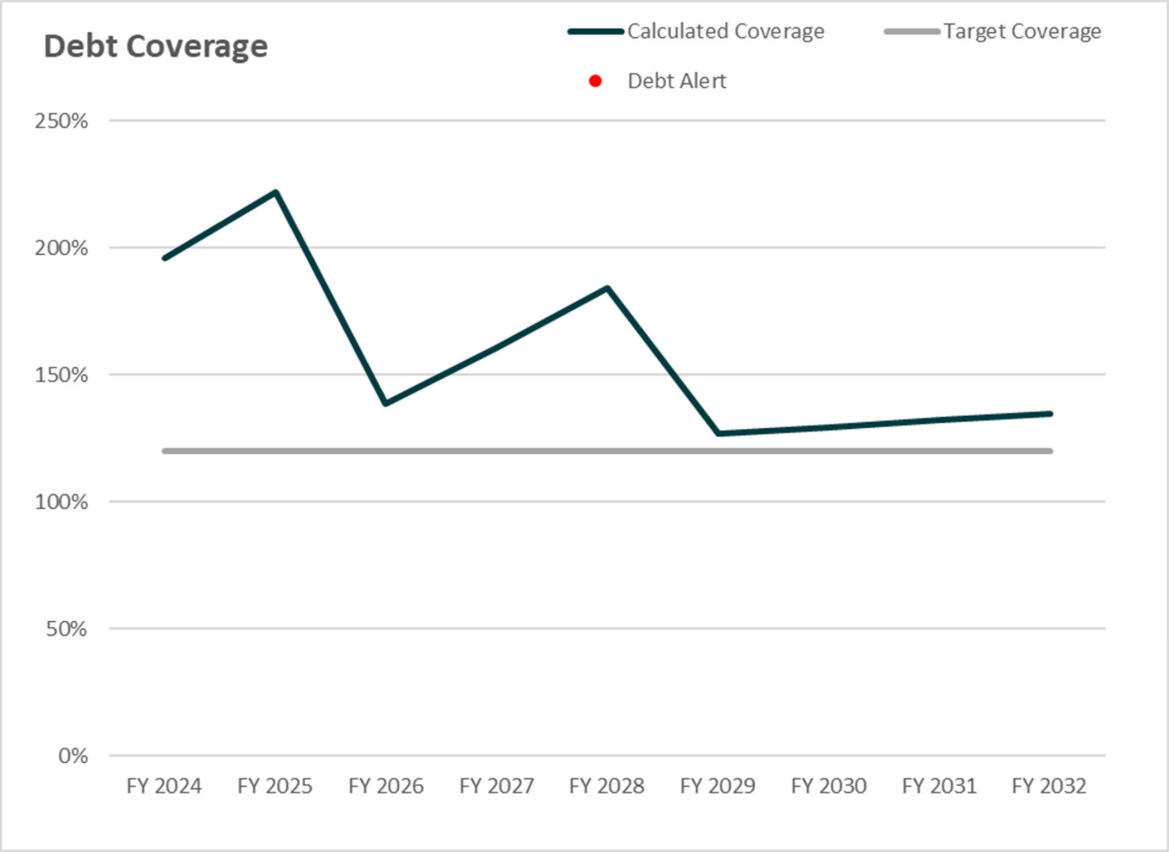


Figure 1-4 shows projected debt coverage (dark blue line) relative to the debt coverage requirement (gray line) over the study period. Debt coverage is expected to decline in FY 2025-26 due to new debt issuances to finance capital project costs. This demonstrates the need for revenue adjustments early in the study period to ensure sufficient debt capacity with which to finance planned capital. Failure to meet debt service coverage results in a technical default, which without foreseeable remedial action such as implementing rate increases, could result in a downgrade of credit rating, higher costs in future debt issuance, or a denial of credit.

Figure 1-4: Proposed Water Financial Plan – Projected Debt Coverage



1.4. Proposed Water Rates

The City's existing water rate structure consists of fixed Water Service Charges (based on meter size), fixed Fireline Service Charges (based on fireline size), and variable Water Volume Rates (per hundred cubic feet [HCF] of water delivered). Raftelis worked closely with City staff and the RSAC to evaluate alternatives to the existing water rate structure. The following changes are proposed:

- **Variable Rate Tiers:** The study proposes a single volumetric rate structure for all customer classes from a single, seasonal uniform rate for all classes. Current and proposed bi-monthly tier definitions (volume allotted in each tier) are shown below in **Table 1-2**. The current bi-monthly structure reflects the City's existing rate structure, which has been in effect since January 2020.

Table 1-2: Proposed Changes to Tiers and Tier Allotments

Line	A Commodity Rates ($/HCF)	B Current	C Proposed
1	Tier 1	Off-Peak (Nov-Apr) Peak (May-Oct)	0-11 HCF
2	Tier 2		12-15 HCF
3	Tier 3		>16 HCF

Table 1-3 shows proposed Water Service Charges, Fire Line Service Charges, and Volumetric Rates through FY 2027-28. All fixed charges are shown bi-monthly. Proposed Water Volumetric tiers are bi-monthly. Proposed rates reflect base (non-shortage) conditions and new baseline supply and demand conditions.

Table 1-3: Proposed Five-Year Water Rate Schedule – Base Condition Rates

Line	A Description	B Current	C Proposed FY 2024	D Proposed FY 2025	E Proposed FY 2026	F Proposed FY 2027	G Proposed FY 2028
1	**Bi-Monthly Fixed Charges**						
2	Meter Size						
3	5/8"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
4	3/4"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
5	SFR 1"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
6	1"	$256.44	$288.70	$311.80	$336.75	$363.69	$392.79
7	1 1/2"	$451.28	$544.05	$587.58	$634.59	$685.36	$740.19
8	2"	$648.00	$850.46	$918.50	$991.98	$1,071.34	$1,157.05
9	3"	$1,309.44	$1,820.76	$1,966.43	$2,123.75	$2,293.65	$2,477.15
10	4"	$2,023.96	$3,250.68	$3,510.74	$3,791.60	$4,094.93	$4,422.53
11	6"	$3,963.26	$7,182.95	$7,757.59	$8,378.20	$9,048.46	$9,772.34
12							
13	Fireline Size						
14	4"	$26.66	$116.78	$126.13	$136.23	$147.13	$158.91
15	6"	$77.46	$285.71	$308.57	$333.26	$359.93	$388.73
16	8"	$165.06	$586.82	$633.77	$684.48	$739.24	$798.38
17							
18	**Volumetric Charges**						
19	All Classes						
20	Tier 1	$6.50	$5.99	$6.47	$6.99	$7.55	$8.16
21	Tier 2	$7.23	$12.06	$13.03	$14.08	$15.21	$16.43
22	Tier 3		$12.91	$13.95	$15.07	$16.28	$17.59

1.5. Proposed Water Shortage Surcharges

With the prior rate study, the City established a schedule of volumetric Water Shortage Surcharges during declared water emergencies. This is necessary to recover revenue shortfalls resulting from reduced water sales in times of shortage. Water shortage stages are currently declared based on criteria outlined in the City's Water Emergency Plan with surcharge rates implemented in all phases of shortage (Phase I-III).

Raftelis recommends that the City update the existing Water Shortage Surcharges. The current system of Water Shortage Rates utilize a single uniform surcharge that does not vary by volume of use or shortage phase. Raftelis recommends that the City maintain the Water Shortage Surcharges as a tool during water emergencies. However, we recommend that the City update the methodology to align with the proposed water rate structure, as well as the projected revenue shortfall and severity of shortage at each stage. This update aligns with the water cost of service analysis which is explained in later sections of this report. The proposed Water Shortage Surcharges maintain the same three-tier structure and the same allotments in shortage and non-shortage conditions.

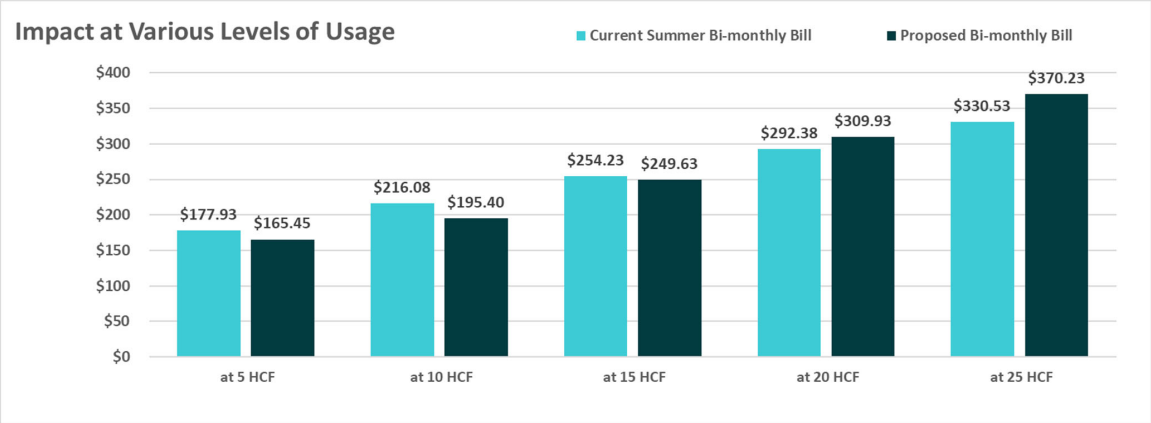
Table 1-4 shows proposed Water Shortage Surcharges for all water shortage stages from FY 2024 through FY 2028.

Table 1-4: Proposed Five-Year Schedule of Water Shortage Surcharges

Line	A Drought Rates	B Phase I	C Phase II	D Phase III
1	FY 2024			
2	Tier 1	$0.89	$2.99	$5.97
3	Tier 2	$1.79	$6.01	$12.02
4	Tier 3	$1.92	$6.43	$12.87
5				
6	FY 2025			
7	Tier 1	$0.97	$3.23	$6.45
8	Tier 2	$1.94	$6.50	$12.99
9	Tier 3	$2.08	$6.95	$13.90
10				
11	FY 2026			
12	Tier 1	$1.05	$3.49	$6.97
13	Tier 2	$2.10	$7.02	$14.03
14	Tier 3	$2.25	$7.51	$15.02
15				
16	FY 2027			
17	Tier 1	$1.14	$3.77	$7.53
18	Tier 2	$2.27	$7.59	$15.16
19	Tier 3	$2.43	$8.12	$16.23
20				
21	FY 2028			
22	Tier 1	$1.24	$4.08	$8.14
23	Tier 2	$2.46	$8.20	$16.38
24	Tier 3	$2.63	$8.77	$17.53

Figure 1-5 shows a sample bi-monthly water bill for a typical Single Family Residential (SFR) customer with a 5/8 inch water meter at varying levels of water use under both current rates and proposed FY 2023-24 rates.

Figure 1-5: Single Family Residential Bi-Monthly Water Bill Impacts (FY 2024)



1.6. Proposed Wastewater Financial Plan

Raftelis conducted a status quo cash flow analysis to evaluate whether existing wastewater rates adequately fund the Wastewater Enterprise's various expenses over the financial planning period. Projected operating and capital costs are accounted for in the financial plan analysis. Raftelis projects that with no rate increases over the five-year study period, the Wastewater Enterprise's reserves will fall below the existing reserve policy and fail to meet its debt coverage requirement in each year of the study period. This demonstrates a need for revenue adjustments for the Wastewater Enterprise.

Raftelis worked with City staff and the RSAC to develop the following schedule of proposed revenue adjustments over the five-year study period (see **Table 1-5**).

Table 1-5: Proposed Wastewater Revenue Adjustments

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	Effective Month	Sept. 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
2	Revenue Adjustments	50%	4%	4%	4%	4%

Key factors influencing the need for proposed Wastewater Enterprise revenue adjustments include:

- Cost inflation: Operating costs continue to increase year over year due to inflationary pressures and the cost of staffing treatment facilities.
- Planned capital expenditures: CIP projects through FY 2027-28, including substantial repair and replacement (R&R) capital projects, total approximately $1.1M per year on average.
- Reserve replenishment: the Wastewater Enterprise has reduced cash reserves during the past several fiscal years due to unforeseen operating costs as well as the completion of a significant capital project, which upgrades the wastewater treatment facilities.

Figure 1-6 shows the proposed CIP financing plan over the study period. CIP is assumed to be funded by a mix of revenue bonds, proceeds from the 2022 Measure H General Obligation (GO) bonds, cash reserves from future rate revenues.

Figure 1-6: Wastewater Capital Improvement Plan

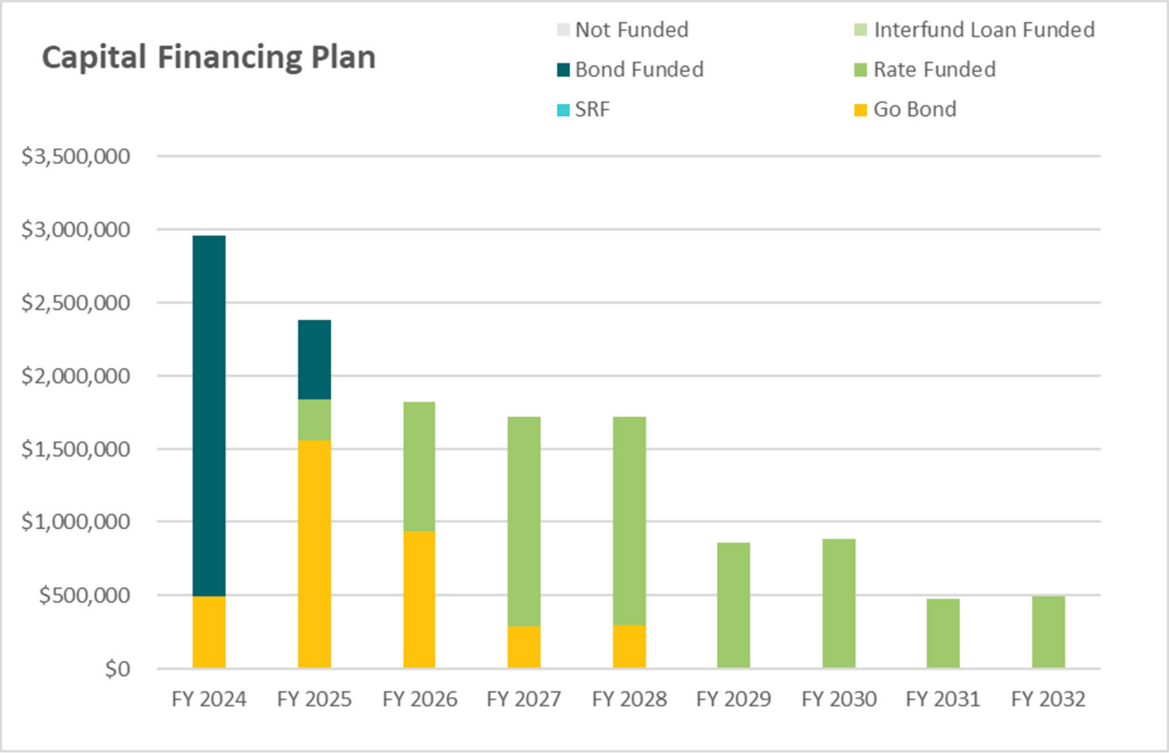


Figure 1-7 shows the proposed versus status quo Wastewater Enterprise operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and light blue solid lines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding for CIP/other purposes are represented by the various stacked bars. Revenue adjustments and new debt issues are required to generate sufficient revenue to cover future O&M expenses, debt service payments, and cash reserves over the study period.

Figure 1-7: Proposed vs. Status Quo Wastewater Financial Plan

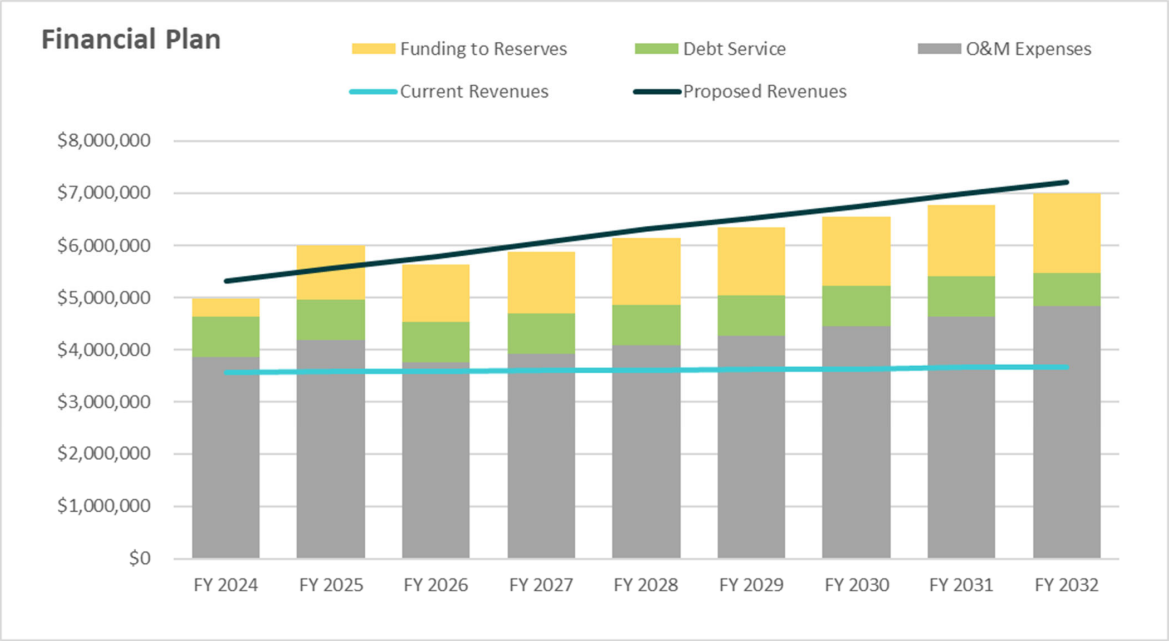


Figure 1-8 shows the Wastewater Enterprise's projected fiscal year-end balance under the proposed financial plan. The light blue bars indicate the ending balance on June 30 of each fiscal year. The existing reserve targets are represented by the solid blue and yellow lines. The Wastewater Enterprise is projected to utilize its reserves during the study period to fund capital improvements and O&M costs. At the end of the financial planning horizon, the Wastewater Enterprise's reserves are projected to meet the existing reserve policy target with the proposed rate increases and debt issuances.

Figure 1-8: Proposed Wastewater Financial Plan – Projected Ending Balances

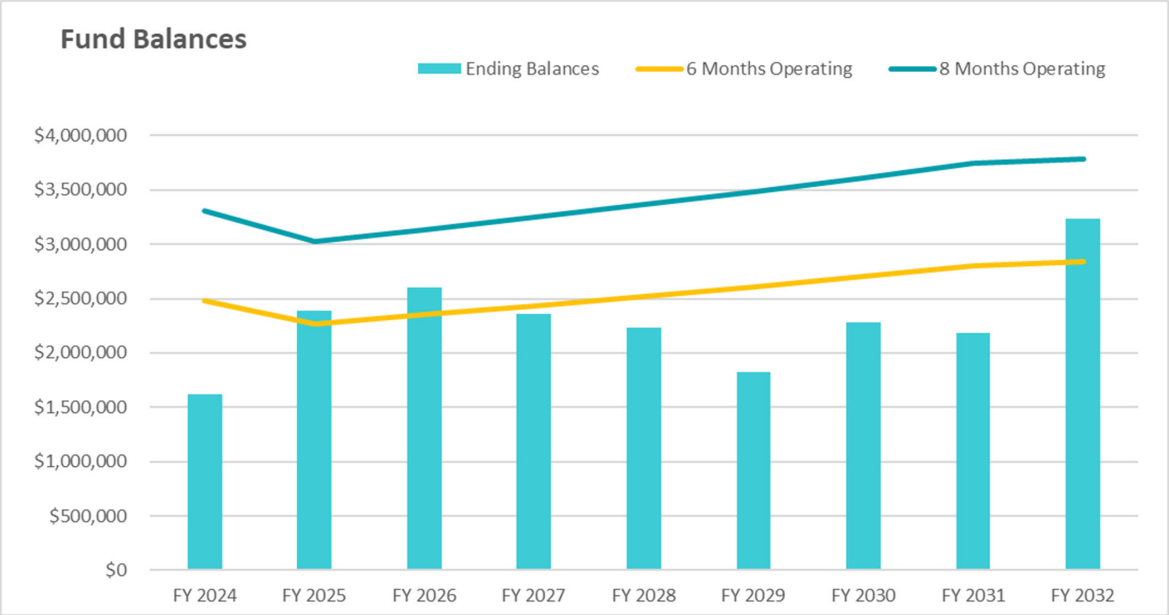
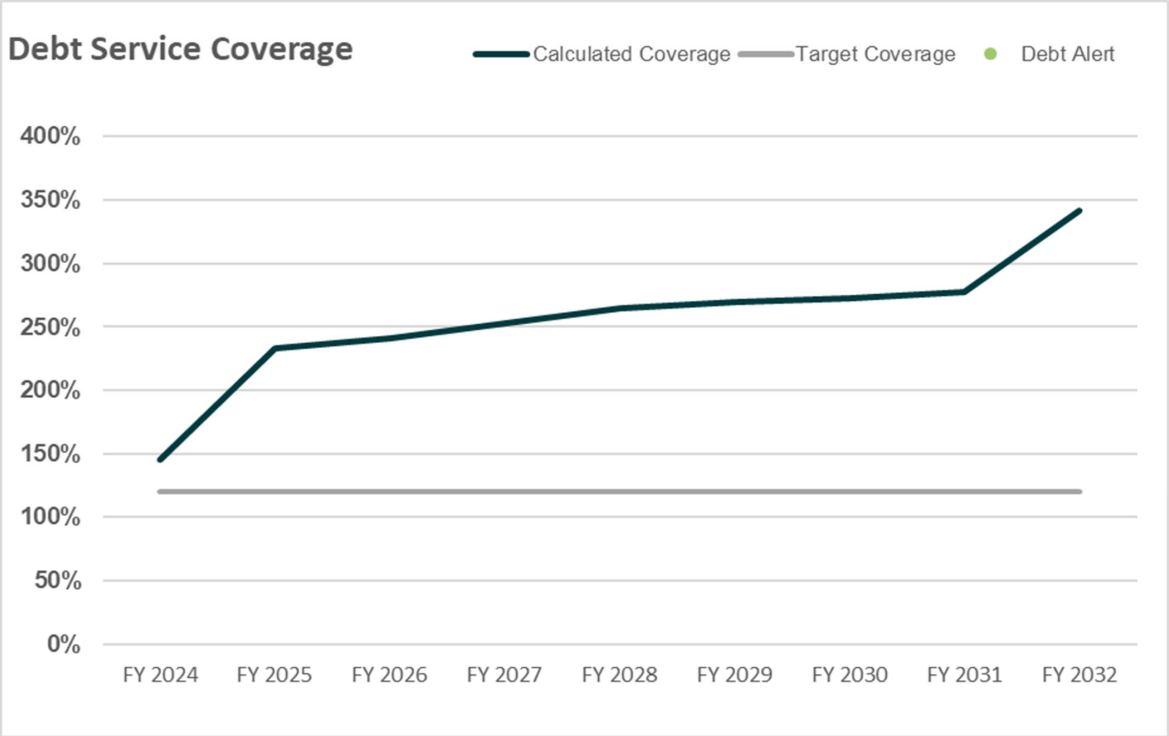


Figure 1-9 shows projected debt coverage (blue line) relative to the debt coverage requirement (gray line) over the study period. Fluctuations in debt coverage over the study period are largely due to new debt service assumed to finance anticipated CIP project costs. Debt coverage remains above the requirement throughout the study period.

Figure 1-9: Proposed Wastewater Financial Plan – Projected Debt Coverage



1.7. Proposed Wastewater Rates

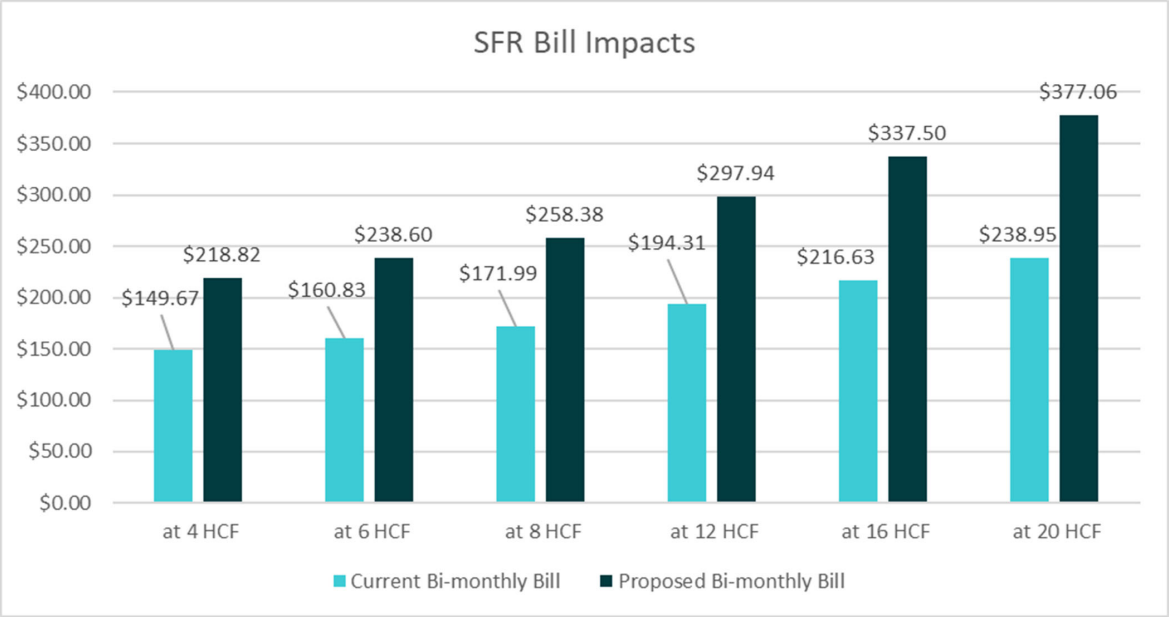
The City's wastewater rate structure consists of Fixed Service Charges and Variable Flow Charges for all customer classes. Residential customers are charged a base rate (Fixed Service Charge) and a volumetric rate (Variable Flow Charge) based on average winter consumption (AWC). Commercial customers are charged a Fixed Service Charge based on the size of the meter serving the connection and Variable Flow Charges based on billed water use. Multi-Family Residential (MFR) customers which include Multi-Dwelling apartments, condos, and mobile home parks, are charged base rates as commercial customers (by meter size) and volumetric flow rates as residential customers (AWC). Raftelis worked with City staff and the RSAC to evaluate any changes to the existing wastewater rate structure. The result of the evaluation maintains the current wastewater rate structure. **Table 1-6** shows proposed wastewater rates through FY 2027-28.

Table 1-6: Proposed Five-Year Wastewater Rate Schedule

Line	A Bi-Monthly Base Charges	B Current Rates	C Proposed FY 2024	D Proposed FY 2025	E Proposed FY 2026	F Proposed FY 2027	G Proposed FY 2028
1	**Residential**						
2	Base Charge	$127.35	$179.26	$186.44	$193.90	$201.66	$209.73
3	Use Charge (AWC)	$5.58	$9.89	$10.29	$10.71	$11.14	$11.59
4							
5	**Non-Residential**						
6	Base Charge						
7	5/8"	$176.68	$250.51	$260.54	$270.97	$281.81	$293.09
8	1"	$441.72	$567.57	$590.28	$613.90	$638.46	$664.00
9	1.5"	$883.42	$1,096.00	$1,139.84	$1,185.44	$1,232.86	$1,282.18
10	2"	$1,413.48	$1,730.12	$1,799.33	$1,871.31	$1,946.17	$2,024.02
11	3"	$2,826.98	$3,738.16	$3,887.69	$4,043.20	$4,204.93	$4,373.13
12	4"	$4,417.14	$6,697.37	$6,965.27	$7,243.89	$7,533.65	$7,835.00
13	6"	$8,834.28	$14,835.22	$15,428.63	$16,045.78	$16,687.62	$17,355.13
14							
15	Use Charge (per HCF)						
16	Car Wash	$3.86	$6.73	$7.00	$7.28	$7.58	$7.89
17	Religious Places/Community Centers	$4.29	$7.28	$7.58	$7.89	$8.21	$8.54
18	Commercial	$5.07	$8.42	$8.76	$9.12	$9.49	$9.87
19	Groceries and Mortuaries	$13.62	$20.65	$21.48	$22.34	$23.24	$24.17
20	Laundry	$4.42	$7.46	$7.76	$8.08	$8.41	$8.75
21	Mixed Retail	$8.52	$13.50	$14.04	$14.61	$15.20	$15.81
22	Lodging with Food	$10.22	$15.83	$16.47	$17.13	$17.82	$18.54
23	Lodging without Food	$5.54	$9.00	$9.36	$9.74	$10.13	$10.54
24	Restaurant	$13.50	$20.30	$21.12	$21.97	$22.85	$23.77
25	Napa Valley College	$4.22	$7.18	$7.47	$7.77	$8.09	$8.42
26	Service Station	$5.83	$9.55	$9.94	$10.34	$10.76	$11.20
27	Winery Pre-Treated	$5.39	$8.87	$9.23	$9.60	$9.99	$10.39
28	Winery Non-Treated	$23.75	$34.27	$35.65	$37.08	$38.57	$40.12
29	Schools	$2.10	$7.18	$7.47	$7.77	$8.09	$8.42

Figure 1-10 shows sample bi-monthly wastewater bills for SFR customers at varying levels of AWC under both current rates and proposed FY 2023-24 rates. Note that actual SFR customer impacts in FY 2023-24 may vary based on each customer's water use characteristics during winter months versus individual months. The average AWC amongst City SFR wastewater customers is approximately 8 HCF of AWC.

Figure 1-10: Single Family Residential Bi-Monthly Wastewater Bill Impacts



2. Introduction

2.1. Agency Overview

The City of St. Helena's (City) water and wastewater department provides water and wastewater service to a population of roughly 6,000 people through about 2,600 metered water connections and approximately 1,700 sewer connections. All of the City's Wastewater customers are located within city limits.; however, the water system extends beyond City limits into areas that include Meadowood Napa Valley Resort, as well as the area between Chaix Lane and Zinfandel Lane along Main Street.

The water system consists of roughly 47 miles of active water distribution pipelines up to 24 inches in diameter, three main supply sources (Louis Stralla Water Treatment Plant (WTP), Stonebridge wells, and an interconnection with the City of Napa), five pressure zones, and six booster pump stations. The wastewater system consists of approximately 24 miles of active gravity sewer pipelines and two lift stations that flow to the Wastewater Treatment and Reclamation Plant (WWTRP).

2.2. Study Overview

Water and wastewater utilities in California typically perform a cost of service analysis every five to ten years to ensure that customers are appropriately charged for service commensurate with the cost to provide service. The City last conducted a water and wastewater cost of service study in 2016, which established proposed rates over a five-year period through Fiscal Year (FY) 2021-22, which included updated drought rates to establish water shortage rates to recover sufficient rate revenue during periods of drought or other water supply shortages.

The City engaged Raftelis in 2021 to conduct a water and wastewater cost of service study to establish a proposed five-year schedule of water and wastewater rates through FY 2027-28. The results of the study are documented within this report. Note that proposed rates cannot be implemented until formally adopted by City Council after a public hearing. Proposition 218 requires that The City Water customers must be mailed a public hearing notice detailing any proposed rate changes no fewer than 45 days before the public hearing. The notice includes a customer's right to protest the rate proposal.

Study Objectives

The major objectives of this study are to:

- Develop a ten-year financial plan that sufficiently funds the City's water and wastewater operations and maintenance (O&M) expenses, debt service payments, and capital expenditures, while adequately funding reserves and achieving debt coverage requirements.
- Conduct cost of service analyses that establish a nexus between the cost to serve water and wastewater customers and the rates charged, per Proposition 218 and industry standards.
- Review the City's existing water and wastewater rate structures and recommend changes and rate alternatives to ensure that proposed rates achieve the financial and policy objectives of the agency to the greatest degree possible.

- Develop a five-year schedule of water and wastewater rates that are fair, cost-justified, provide full revenue recovery, and align with Proposition 218.
- Develop a five-year schedule of drought surcharge rates that consider the City's Water Emergency Plan.

Key Changes Since the Prior Rate Studies

Water Enterprise

Reduction in baseline water demand: Since the prior cost of service study was conducted in 2016, The City's water supplies and demands have undergone substantial changes. The prior rate study assumed baseline water demand of approximately 1,500 acre-feet per year (AFY). Historical demands, prior to the 2016 study were even higher. Since 2016 the City had actively sought conservation from customers during a multi-year water shortage emergency and implemented water allocations, through the declaration of the Phase II Water Emergency, for the first time in calendar year 2021. Total water demand in FY 2021-22 was approximately 30 percent lower than in FY 2018-19. After analyses of historical data and significant discussion with City staff and the RSAC, baseline water demand for this study is assumed at approximately 1,300 AFY. The City collects approximately 60 percent of its water rate revenues through Water Volume Rates charged per unit of water delivered and 35 percent of its wastewater rate revenues through Flow Charges based on water use. Reductions in baseline water demands results in fewer units of water with which to recover the total costs of the utility. Proposed water and wastewater rates are designed to reflect new normal water demands.

Capital Reinvestment: The City's water utility has many CIPs that are necessary to maintain a high level of service, meet all regulatory requirements, ensure the availability and reliability of both local and imported water supplies, and prevent emergencies from infrastructure failure. Raftelis and the RSAC worked closely with the City's Public Works department to incorporate the capital program into the rate study and execute these projects over the next ten or more years. Historically the City's water utility has executed on average $1 million in capital projects each year. In this study the utility aims to execute over $6 million in annual capital projects.

Reserve Funding: Cash reserves mitigate risk, provide for working capital, can improve future borrowing terms, and ensure reliable service if an emergency were to occur on the system. Reserves have been utilized over the past several years to offset unexpected operating costs and mitigate the impacts of drought and reduced revenues. Replenishing reserves to adopted levels over the long-term is an added cost to the system.

Wastewater Enterprise

Operating Costs: Just like the Water utility, the wastewater enterprise has experienced increased costs due to inflation as well as unexpected operating costs in staffing the WWTP on a temporary, contractor basis. These increases reduce net cash to reserves and net operating revenues to achieve debt coverage (or conversely reducing future debt capacity).

Capital Projects and Cash Reserve Balance: Wastewater Treatment Plant Phase I Upgrades to produce recycled water is well over the original budget. With proceeds from the USDA loan finite, the difference, approximately $3 million, reduces the utility's cash balance. Construction cost inflation (CCI) and supply chain disruptions experienced in FY 2021 and 2022 makes recent projects more expensive in absolute dollars, relative to their budgeted values.

Reduction in Rate Revenue Base: In this study, assumed wastewater flows from the City's largest wastewater connection is reduced by greater than 95% from the prior rate study. This is due to wastewater being captured and treated onsite. Additional other changes and updates to the wastewater connection and flow generation assumptions results in adjustments to the revenue generated with existing rates.

3. Legal Requirements and Rate Setting Methodology

3.1. Legal Requirements

California Constitution – Article XIII D, Section 6 (Proposition 218)

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements, as they relate to public water and wastewater service are as follows:

1. A property-related charge (which includes water or wastewater rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the charge shall not be used for any purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of the property.
5. A written notice of the proposed charge shall be mailed to both the customer of record and owner of record of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

As stated in the American Water Works Association's *(AWWA) Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices – M1 Seventh Edition* (Manual M1), "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Raftelis follows industry standard rate setting methodologies set forth by the *AWWA's Manual* M1 to ensure the water cost of service analysis presented in this study meets Proposition 218 requirements and establishes rates that do not exceed the proportionate cost of providing water services on a parcel basis. The methodology in the Manual M1 is a nationally recognized industry ratemaking standard which courts have recognized as consistent with Proposition 218. Similarly, the wastewater cost of service presented in this study was conducted in accordance with principles established by the Water Environment Federation (WEF) and described in *Financing and Charges for Wastewater Systems.*

California Constitution Article X, Section 2

California Constitution Article X, Section 2 mandates that water resources be put to beneficial use and that the waste or unreasonable use of water be prevented. Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with Non-Residential Irrigation the next highest priority. Thus, management of water resources is part of the property-related service provided by public water suppliers to ensure the resource is available over time. The City is proposing to implement inclining tiered (also known as inclining block) water rates to incentivize residential customers to conserve water. The inclining tiered rates must be based on the proportionate costs incurred to provide water to customers to achieve compliance with Proposition 218. "Inclining" tiered rate structures (which are synonymous with "increasing" tier rate

structures and "tiered" rates), when properly designed, allow a water utility to send conservation price signals to customers. Due to heightened interest in water conservation and efficiency of water use, tiered water rates have gained widespread use, especially in relatively water-scarce regions like California. Tiered rates meet the requirements of Proposition 218 as long as they reasonably reflect the proportionate cost of providing service for each tier.

3.2. Rate-Setting Methodology

This study was conducted using industry-standard principles outlined by the AWWA's Manual M1 and WEF's Financing and Charges for Wastewater Systems. The process and approach Raftelis utilized in the study to determine rates is informed by The City Water's policy objectives, the current system of rates, and the legal requirements in California (namely, Proposition 218). The resulting financial plans, cost of service analyses, and rate design process follows five key steps, outlined below, to determine proposed rates that fulfill The City Water's objectives, meet industry standards, and comply with relevant regulations. The overall process outlined below applies to the cost of service analyses for both water and wastewater.

1. **Financial Plan:** The first study step is to develop a multi-year financial plan that projects the Water and Wastewater Enterprises' revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine revenue adjustments needed to recover adequate revenues to fund expenses and reserves.
2. **Revenue Requirement Determination:** After completing the financial plan, the rate-making process begins with the determination of the revenue requirement for the test year, also known as the cost-of service year. The test year for this study is FY 2023-24. The revenue requirement should sufficiently fund the Water and Wastewater Enterprises' operating costs, annual debt service (including coverage requirements), capital expenditures, and reserve funding needs.
3. **Cost of Service Analysis:** The annual cost of providing water or wastewater service (i.e., the revenue requirement) is then distributed to customer classes commensurate with their use of and burden on the system. A cost of service analysis involves the following steps:

    - Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission, storage, customer service, etc. (for water) and collection, treatment, customer, etc. (for wastewater).
    - Allocate to cost causation components – the functionalized costs are then allocated to cost causation components such as supply, base delivery, peaking, etc. (for water) and flow, strength, etc. (for wastewater).
    - Develop unit costs – unit costs for each cost causation component are determined using units of service.
    - Distribute cost components – the cost components are allocated to each customer class and tier using the unit costs in proportion to their demand and burden on the system.

    A water cost of service analysis considers both the average water demand and peak demand. Peaking, or extra-capacity, costs are incurred during periods of peak consumption, most often coinciding with summer water use. There are additional capacity-related costs associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. Patterns of use impose additional costs on a water utility and are used to determine the cost burden on peaking-related facilities. Similarly, a wastewater cost of service analysis considers the amount of wastewater treatment plant influent contributed by each customer class in order to account for customer differences in the quantity and strength of wastewater discharges.

4. **Rate Design:** After allocating the revenue requirement to each customer class, the rate design and calculation process can begin. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize the City Water's Policy Objectives. Rates also act as a public information tool in communicating policy objectives to customers. This process also includes a bill impact analysis.

5. **Administrative Record Preparation and Rate Adoption:** The final step in a rate study is to develop the administrative record in conjunction with the rate adoption process. This report serves as the administrative record for this study. The administrative record documents the study results and presents the methodologies, rationale, justifications, and calculations used to determine the proposed rates. A thorough and methodological administrative record serves two important functions: maintaining defensibility in a stringent legal environment and communicating the rationale for revenue adjustments and proposed rates to customers and key stakeholders.

4. Water Rate Study

4.1. Key Inputs and Assumptions

Raftelis developed a water rate model in Microsoft Excel to project financial calculations over the next ten fiscal years with projections shown in this report through the five-year rate-setting period of FY 2027-28 (i.e., the "study period"). The City's fiscal year spans from July 1 through June 30. Projections in future years were generally made based on actual or estimated data for FY 2021-22 and/or budgeted data for FY 2022-23 using key assumptions outlined below. Assumptions were discussed with, and reviewed by, City staff to ensure that the City water system's unique characteristics are accurately accounted for. Model inputs and assumptions which underly the long-range financial plan were discussed at length with the RSAC over multiple meetings. Note that most table values shown throughout this report are rounded to the last digit shown and may therefore not sum precisely to the totals shown.

4.1.1. Current Water Rates

Table 4-1 shows the rates currently in effect in FY 2022-23, which were developed during the prior rate study in 2016. Customers are currently billed bi-monthly for two primary charges: 1) Water Service Charges and 2) Water Volume Rates per hundred cubic feet (HCF)[2] of water delivered. The Water Service Charge is a fixed bi-monthly charge that varies based on meter size. Additionally, customers with private fire lines are subject to a fixed bi-monthly Fire Line Service Charge. All customer classes are charged a fixed charge based on meter size that is billed bi-monthly. All customer classes are also charged a Water Volume Rate (volumetric charge) per HCF that is based on a peak or off peak and drought or non-drought basis.

[2] One HCF equals approximately 748 gallons.

Table 4-1: Current Water Rates

Line	A Description	B Current
1	**Fixed Charges**	
2	Meter Size	
3	5/8"	$139.78
4	3/4"	$139.78
5	SFR 1"	$139.78
6	1"	$256.44
7	1 1/2"	$451.28
8	2"	$648.00
9	3"	$1,309.44
10	4"	$2,023.96
11	6"	$3,963.26
12		
13	Fireline Size	
14	4" & smaller	$26.66
15	6"	$77.46
16	8"	$165.06
17		
18	**Volumetric Charges**	
19	All Classes	
20	Treated Variable Charge (Non-Drought)	
21	Off-Peak	$6.50
22	Peak	$7.23
23		
24	Treated Variable Charge (Drought)	
25	Off-Peak	$6.87
26	Peak	$7.63

Uniform current peak and off-peak tiers are defined below in **Table 4-2**.

Table 4-2: Current Structure for Water Volume Rates

Line	A Water Customer Tiers	B All Customer Classes
1	Peak	May - October
2	Off Peak	November – April

Some water utilities include elevation electricity surcharges for customer parcels in elevated zones, but only if warranted by the water system's design, if the costs applicable to the elevated zones can feasibly be calculated and assigned with relative certainty and consistent with cost of service principles, and if the relative differential costs are not outweighed by the administrative costs of evaluating and administering the elevation surcharge. Most utilities in California do not have these surcharges due to their complexity. City Water's existing water rate structure does not include electricity surcharges for the City Water's elevated distribution zones and we do not recommend that they be added for this study period. Raftelis reviewed the issue with

City staff, the RSAC, and City Council and confirmed that the amount of revenue that would be recovered through elevation surcharges is immaterial to water rates, while significantly impacting a subset of customers and creating more administration for the City enterprise.

4.1.2. Water Enterprise Financial Assumptions

Inflationary assumptions shown in **Table 4-3** are used to escalate projected non-rate revenues and operations and maintenance (O&M) expenses beyond FY 2022-23. For O&M expenses, the general inflation rate is consistent with long-term changes in the Consumer Price Index (CPI), with an expectation that inflation remains elevated through FY 2026. Similarly, capital inflation is based on the long-term average of the Engineering News-Record's (ENR) Construction Cost Index (CCI). The capital inflation factor is used to adjust uninflated capital project cost estimates provided to Raftelis by City staff. Salary and benefit inflationary increases were provided by the City Water and Finance staff, as water utility personnel cost increases are typically agency-specific. The purchased water factor reflects a known escalator within the City's water supply agreement with the City of Napa. All other O&M expense inflationary assumptions were developed by Raftelis based on professional judgement, experience with similar agencies, and after discussions with City staff and the RSAC.

Table 4-3: Water Inflationary Assumptions

Line	A Inflationary Categories	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	**Revenue Inflation**					
2	Miscellaneous Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
3	Reserve Interest Rate	1.0%	1.0%	1.0%	1.0%	1.0%
4						
5	**Expense Inflation**					
6	General	5.0%	4.2%	3.5%	2.8%	2.8%
7	Salary	7.0%	7.0%	5.0%	5.0%	5.0%
8	Benefits	6.0%	6.0%	6.0%	6.0%	6.0%
9	Supplies	5.0%	4.2%	3.5%	2.8%	2.8%
10	Utilities	5.0%	5.0%	5.0%	5.0%	5.0%
11	Purchased Water	6.6%	6.6%	3.0%	3.0%	3.0%
12	Capital	5.0%	4.4%	3.8%	3.2%	3.2%

4.1.3. Projected Water Service Connections

Water connection growth projections are necessary to estimate water demand and rate revenues over the study period. Raftelis relied on information within the City's General Plan and projected housing units over the long-term. An assumption of 10 SFR units and 8 MFR dwelling units per year is translated into percentages relative to the existing connection base. Growth assumptions in **Table 4-4** are applied to the respective customer connection types to project the number of water meters and fire lines in each year over the study period (**Table 4-5**).

Table 4-4: Projected New Water Connection Growth

Line	A Account Growth	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	SFR	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
2	MFR	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
3	Commercial	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	Industrial	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Landscape	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Raw	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
7	Fire	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4-5: Count of Water Connections

Line	A Descrip-tion	B Actual FY 2022	C Projected FY 2023	D Projected FY 2024	E Projected FY 2025	F Projected FY 2026	G Projected FY 2027	H Projected FY 2028
1	**Number of Water Meters**							
2	5/8"	2,002	2,011	2,020	2,029	2,038	2,047	2,056
3	3/4"	35	35	35	35	36	36	36
4	SFR 1"	261	262	263	265	266	267	269
5	1"	123	123	124	124	125	125	126
6	1 1/2"	70	70	71	71	71	71	72
7	2"	63	63	63	63	64	64	64
8	3"	8	8	8	8	8	8	8
9	4"	11	11	11	11	11	11	11
10	6"	13	13	13	13	13	13	13
11	8"	0	0	0	0	0	0	0
12	**Total**	**2,586**	**2,597**	**2,608**	**2,620**	**2,631**	**2,642**	**2,654**
13								
14	**Number of Fire Lines**							
15	4"	57	57	57	57	57	57	57
16	6"	29	29	29	29	29	29	29
17	8"	15	15	15	15	15	15	15
18	**Total**	**101**	**101**	**101**	**101**	**101**	**101**	**101**

4.1.4. Projected Water Sales

City staff provided Raftelis with total annual water use data by customer class for FY 2018-19 through FY 2021-22. Raftelis worked closely with City staff and the RSAC to develop water use projections over the study period. Water demand projections depend on two key assumptions: new connection growth and water demand per connection. Beginning in FY 2023, annual water use is projected at the customer class level by increasing prior year water use based on both assumed connection growth and water demand per connection. **Table 4-6** shows projected water use by customer class over the study period based on the current water rate structure. Line 1 shows the water use demand factor used to increase, decrease, or maintain water usage projections from the previous year. An analysis of historical water demand was conducted to help inform new baseline water

demand expectations for normal conditions. Historically, per capita water demands were higher and in the past 10 years the City has experienced two multi-year droughts, Covid-19 disruptions, major wildfires, and a local water emergency in which water allocations were implemented for the first time. Raftelis relied on FY 2019 as the last "normal" condition year and blended historical demands, recently witnessed rebounds in demands, and conservative projections to arrive at the baseline demand of 1,300 AFY. For context, the prior rate study baseline water demand was estimated at 1,500 AFY while the lowest level of demand in FY 2022 was around 1,000 AFY.

Table 4-6: Projected Water Use Under Existing Rate Structure – Baseline Demand Conditions

Line	A Description	B Actual FY 2022	C Estimated FY 2023	D Projected FY 2024	E Projected FY 2025	F Projected FY 2026	G Projected FY 2027	H Projected FY 2028
1	Demand Factor	Actual Demand	Estimated Demand	115%	100%	100%	100%	100%
2								
3	Total Usage							
4	SFR	165,016	189,768	219,274	220,319	221,369	222,424	223,484
5	MFR	58,803	67,623	78,431	79,100	79,775	80,456	81,143
6	Commercial	100,020	115,023	132,276	132,276	132,276	132,276	132,276
7	Industrial	88,441	101,707	116,963	116,963	116,963	116,963	116,963
8	Fire	184	212	243	243	243	243	243
9	Landscape	9,264	10,654	12,252	12,252	12,252	12,252	12,252
10	Raw	4,379	5,036	5,791	5,791	5,791	5,791	5,791
11	**Total Usage (HCF)**	**426,107**	**490,023**	**565,230**	**566,945**	**568,670**	**570,406**	**572,153**
12	*Total Usage (AF)*	*978*	*1,125*	*1,298*	*1,302*	*1,305*	*1,309*	*1,313*

4.2. Financial Plan

Section 4.2 details the development of the proposed Water Enterprise financial plan for the City over the study period. The following subsections include estimates and projections of annual revenues, O&M expenses, debt service payments, capital expenditures, and reserve funding FY 2032. For formatting purposes, most tables in this section are shown through FY 2028, the end of the five-year rate setting period. The overall purpose of the financial plan is to determine annual water rate revenues required to achieve sufficient cash flow, maintain adequate reserves, and meet debt coverage requirements in every year of the plan.

4.2.1. Water Enterprise Revenue Under Current Rates

The Water Enterprise's revenue sources consist of water rates, miscellaneous fees, interest earnings on cash reserves, and other non-rate revenues. The rate revenue projections shown in this section assume that current FY 2021-22 water rates are effective throughout the study period, and therefore represent estimated revenues in the absence of any water rate increases. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments (i.e., gross rate revenue increases).

4.2.1.1. Calculated Water Rate Revenues

Raftelis projects annual water rate revenues from Water Service Charges, Fire Line Service Charges, and Water Volume Rates over the study period based on current FY 2022 water rates (from **Table 4-1**), projected number

of water meters/private fire lines (from **Table 4-5**), and projected annual water use (from **Table 4-6**). **Table 4-7** shows projected Water Service Charge and Fire Line Service Charge revenues under current rates over the study period, calculated as follows:

Fixed Charge Revenue = [FY 2021-22 bi-monthly charge] × [Number of connections] × [6 Bills per year]

Table 4-7: Projected Fixed Charge Revenue from Existing Rates

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	**Water Meters**						
2	5/8"	$1,686,496	$1,693,992	$1,701,525	$1,709,097	$1,716,706	$1,724,354
3	3/4"	$29,458	$29,564	$29,669	$29,776	$29,883	$29,990
4	SFR 1"	$219,939	$220,987	$222,040	$223,098	$224,162	$225,230
5	1"	$189,896	$190,545	$191,200	$191,860	$192,526	$193,197
6	1 1/2"	$190,227	$190,921	$191,621	$192,325	$193,036	$193,751
7	2"	$245,490	$246,041	$246,596	$247,155	$247,718	$248,285
8	3"	$62,987	$63,123	$63,259	$63,397	$63,535	$63,675
9	4"	$133,743	$133,906	$134,069	$134,234	$134,401	$134,568
10	6"	$309,654	$310,177	$310,704	$311,236	$311,771	$312,311
11	8"	$0	$0	$0	$0	$0	$0
12	**Total**	**$3,067,890**	**$3,079,254**	**$3,090,683**	**$3,102,177**	**$3,113,736**	**$3,125,361**
13							
14	**Fire Lines**						
15	4"	$9,118	$9,118	$9,118	$9,118	$9,118	$9,118
16	6"	$13,478	$13,478	$13,478	$13,478	$13,478	$13,478
17	8"	$14,855	$14,855	$14,855	$14,855	$14,855	$14,855
18	**Total**	**$37,451**	**$37,451**	**$37,451**	**$37,451**	**$37,451**	**$37,451**
19							
20	**Total**	**$3,105,341**	**$3,116,705**	**$3,128,134**	**$3,139,628**	**$3,151,187**	**$3,162,812**

Table 4-8 shows projected Water Volume rate revenue, by class under current rates over the study period, calculated as follows:

Water Volume Rate Revenue = [FY 2022 rate per HCF] × [Annual Water Use in HCF]

Table 4-8: Projected Commodity Charge Revenues Under Current Water Rates

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	SFR	$1,400,713	$1,618,497	$1,626,210	$1,633,961	$1,641,748	$1,649,572
2	MFR	$494,742	$573,810	$578,707	$583,647	$588,629	$593,653
3	Commercial	$842,801	$969,221	$969,221	$969,221	$969,221	$969,221
4	Industrial	$743,835	$855,411	$855,411	$855,411	$855,411	$855,411
5	Fire	$1,536	$1,766	$1,766	$1,766	$1,766	$1,766
6	Landscape	$79,493	$91,416	$91,416	$91,416	$91,416	$91,416
7	**Total**	**$3,563,120**	**$4,110,121**	**$4,122,732**	**$4,135,422**	**$4,148,191**	**$4,161,040**

Table 4-9 shows additional miscellaneous rate revenue projections associated with raw water customers. Raw water contract rates are outside of the scope of this rate study and are therefore not included with other rate revenues.

Table 4-9: Projected Raw Water Rate Revenues

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	NA NVC Irrigation In Field	$804.75	$851.00	$897.25	$943.50	$989.75	$1,036.00
2	2805 Spring Mtn Rd	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
3	ELM. Pumphouse	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
4	NA Stonebridge Irrigation Pope Street	$2,998.02	$3,170.32	$3,342.62	$3,514.92	$3,687.22	$3,859.52
5	Elmhurst Pump Station	$0.13	$0.14	$0.14	$0.14	$0.15	$0.15
6	NA Wappo Park	$7.83	$9.34	$10.82	$12.39	$14.07	$15.85
7	**Total Raw Commodity Revenue**	**$3,811**	**$4,031**	**$4,251**	**$4,471**	**$4,691**	**$4,912**

4.2.1.2. Other Water Revenues

Table 4-10 shows all other Water revenues. All FY 2023 other revenues are based on the City's FY 2023 budget and escalated annually by the miscellaneous inflation rate (from **Table 4-3**). Interest revenue is estimated in the financial plan model beginning in FY 2024 based on projected fund balances and the assumed interest rate (from **Table 4-3**).

Table 4-10: Other Water Enterprise Revenues

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	**Other Operating Revenue**						
2	Engineering Fees	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
3	Raw Water Permit Fees	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
4	Backflow Testing & Insp Fees	$150	$150	$150	$150	$150	$150
5	Other Revenue	$8,500	$8,500	$8,500	$8,500	$8,500	$8,500
6	Finance Charges	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000
7	Water Meter Install Fee	$5,500	$5,500	$5,500	$5,500	$5,500	$5,500
8	CARE Program	($27,000)	$0	$0	$0	$0	$0
9							
10	**Non-Operating Revenues**						
11	Investment Earnings	$50,000	$25,358	$42,293	$57,362	$71,696	$92,637
12							
13	**Water Impact Fee Revenues**						
14	Investment Earnings	$1,779	$2,115	$2,455	$2,798	$3,145	$3,495
15	Other Revenue	$18,164	$18,164	$18,164	$18,164	$18,164	$18,164
16	Water Impact Fees	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
17							
18	**Total Other Revenue**	**$92,093**	**$94,787**	**$112,062**	**$127,474**	**$142,155**	**$163,446**

4.2.1.3. Summary of Projected Water Revenues

Table 4-11 shows a summary of all projected Water revenues under current rates over the study period. This includes all projected revenues shown in **Table 4-7** through **Table 4-10**. This revenue summary represents expected revenues in the absence of any rate increase over the study period.

Table 4-11: Summary of Projected Water Enterprise Revenues Under Current Rates

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Fixed Revenue	$3,105,341	$3,116,705	$3,128,134	$3,139,628	$3,151,187	$3,162,812
2	Commodity Revenue	$3,563,120	$4,110,121	$4,122,732	$4,135,422	$4,148,191	$4,161,040
3	Misc Revenue	$3,811	$4,031	$4,251	$4,471	$4,691	$4,912
4	Other Revenue	$92,093	$94,787	$112,062	$127,474	$142,155	$163,446
5	**Total Revenue**	**$6,764,364**	**$7,325,644**	**$7,367,180**	**$7,406,995**	**$7,446,225**	**$7,492,209**

4.2.2. Water Operations & Maintenance Expenses

City staff provided the adopted Water Enterprise O&M expense budget for FY 2023 as well as estimates on any temporary/one-time expenses. Raftelis adjusts future year estimates using inflationary factors (from **Table 4-3**). **Table 4-12** shows a summary of all Water Enterprise O&M expenses over the rate-setting period.

Table 4-12: Projected Water Enterprise O&M Expenses

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	**Operating Expenses**						
2	Non Departmental	$260,342	$276,476	$293,569	$310,377	$328,112	$346,871
3	Council	$21,927	$23,270	$24,695	$26,145	$27,682	$29,309
4	Administration	$299,603	$319,487	$340,621	$358,514	$377,285	$397,052
5	Finance	$593,299	$630,162	$668,011	$700,425	$733,195	$767,596
6	Attorney	$159,500	$170,665	$182,612	$191,742	$201,329	$211,396
7	Public Works						
8	Administration	$857,395	$912,977	$971,107	$1,019,525	$1,069,365	$1,121,735
9	Public Buildings	$31,400	$33,018	$34,477	$35,725	$36,788	$37,885
10	Street Maintenance	$33,400	$35,070	$36,543	$37,822	$38,881	$39,970
11	Water Distribution	$844,304	$914,912	$966,784	$1,013,053	$1,059,504	$1,108,237
12	Water Treatment	$2,468,107	$2,934,965	$3,118,131	$3,232,809	$3,348,704	$3,469,096
13	Temp/Part Time	$1,614,000	$0	$0	$0	$0	$0
14	**Total**	**$7,183,277**	**$6,251,002**	**$6,636,549**	**$6,926,137**	**$7,220,845**	**$7,529,145**

4.2.3. Water Debt

Table 4-13 shows the projected debt service obligations for Water over the study period. Existing debt service consists of the 2012B Installment Agreement and Loan Agreement (Direct Borrowing). Proposed Water Enterprise debt service is also shown. Note that proposed debt service represents preliminary projections for planning purposes based on the proposed financial plan and best information available at the time of this study. The timing, magnitude, or financing assumptions are for planning purposes only and should not be construed as municipal advice.

Table 4-13: Water Debt Service

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	**Existing Debt Service**						
2	2012B Installment Agreement - Water	$410,517	$410,361	$409,969	$412,552	$409,617	$410,009
3	Loan Agreement (Direct Borrowing)	$540,160	$541,053	$541,178	$540,305	$538,551	$541,432
4							
5	**Proposed Debt Service**	$0	$613,350	$613,350	$1,956,877	$1,956,877	$1,956,877
6							
7	**Total Debt Service**	**$950,677**	**$1,564,764**	**$1,564,497**	**$2,909,734**	**$2,905,045**	**$2,908,318**

4.2.4. Water Enterprise Capital Improvement Plan

Table 4-14 shows the City's planned capital improvement plan (CIP) for the Water utility. All values account for assumed CCI. Significant projects include Napa Intertie pipeline and pump station projects, the Bell Canyon Intake Tower replacement, and Water Treatment Plant Transmission Main replacement. With the exception of the Water Main Annual Replacement Program Allowance funded with GO Bond proceeds, all other projects are assumed to be rate funded with future cash and revenue bond proceeds.

Table 4-14: Water Capital Improvement Plan

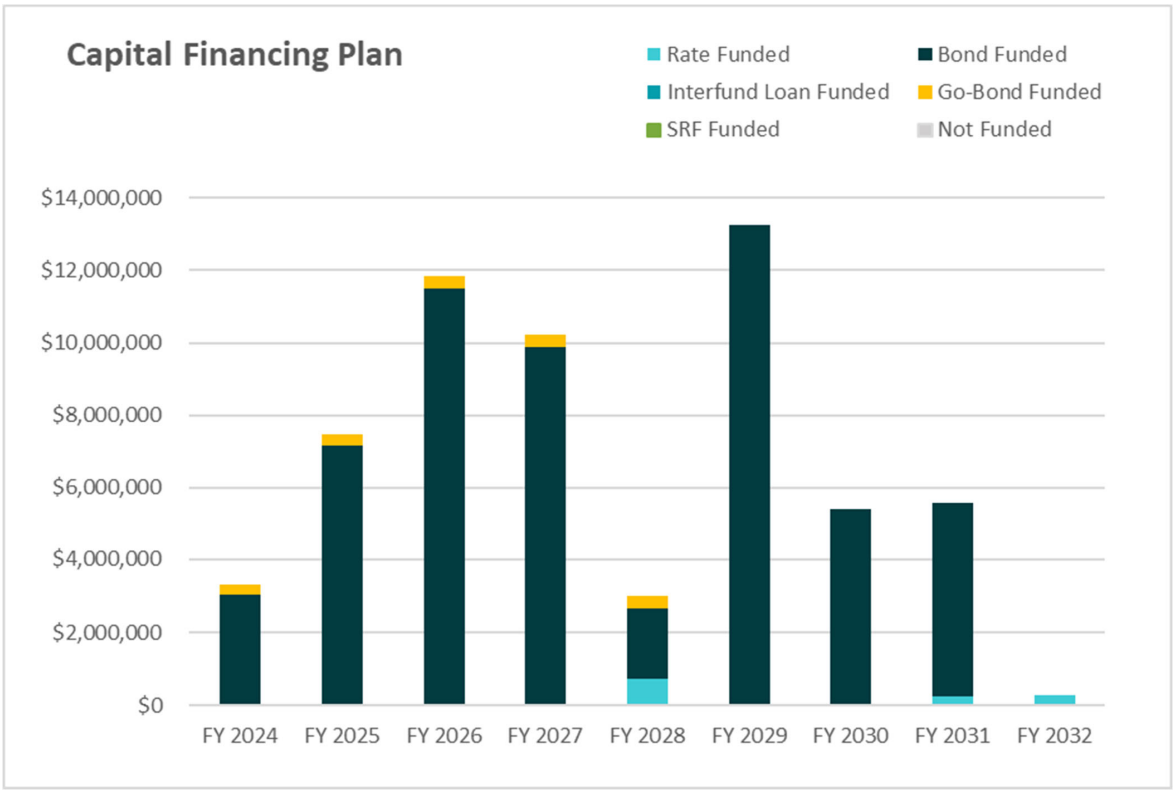
Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	W-109 Bell Canyon Intake Tower Replacement	$0	$0	$361,004	$3,372,495	$0	$0
2	W-80 Dwyer Road Booster Pump Station	$0	$0	$986,580	$0	$0	$0
3	W18-113 SCADA Improvements - Offsite Communications	$0	$0	$175,392	$364,114	$375,765	$0
4	W-86 Spring Mountain Pressure Zone Improvements (Holmes Tank Upgrade)	$0	$0	$0	$346,470	$1,609,005	$1,660,493
5	PWTM-1 Napa Intertie Pipeline Replacement (Breeze Inactive)	$0	$0	$1,252,957	$2,601,138	$2,684,374	$0
6	Smart Water Meters	$0	$0	$431,903	$896,630	$925,322	$0
7	W21-01 Kearney & Andrea Water Main Replacement	$0	$919,490	$0	$0	$0	$0
8	W-101 Rehabilitate Tank 2 at Lower Reservoir	$0	$987,000	$0	$0	$0	$0
9	W18-111 WTP Condition Assessment	$0	$210,000	$0	$0	$0	$0
10	Napa Intertie Pump Station Replacement (Construction)	$0	$0	$0	$227,571	$117,427	$605,922
11	Napa Intertie Pump Station Replacement (DESIGN)	$0	$420,000	$2,082,780	$0	$0	$0
12	Water Treatment Plant (Water Treatment Plant Rehabilitation)	$0	$0	$0	$0	$0	$0
13	PWTM-2 Water Treatment Plant Transmission Main Replacement	$0	$0	$1,743,835	$3,620,201	$3,736,048	$0
14	W18-118 Water Main Annual Replacement Program Allowance	$0	$302,400	$315,706	$327,702	$338,189	$349,011
15	PWRR-1 Yr 6-10 - Water Main Annual Replacement Program allowance (not funded by GO Bond)	$0	$0	$0	$0	$0	$0
16	PWRR-1 Future Allowance for Pipeline R/R (Years11-15)	$0	$0	$0	$0	$0	$0
17	PFAS Sampling Project	$0	$26,250	$0	$0	$0	$0
18	Disinfection By Products Project	$0	$52,500	$0	$0	$379,288	$391,425
19	Risk and Resilience Assessment Report dated January 2022 - Additional recommended items	$0	$78,750	$82,215	$0	$0	$0
20	Cyber-Security Implementation	$0	$26,250	$27,405	$0	$0	$0
21	Asset Management Program Development	$0	$0	$0	$56,893	$0	$0
22	Asset Management Software Assessment & Optimization planning	$0	$0	$0	$17,068	$0	$0
23	CMMS Purchase & Setup	$0	$0	$0	$0	$58,713	$0
24	ArCommercialIS Purchase & Setup	$0	$36,750	$16,443	$0	$0	$0
25	Allocated RW CIP	$0	$262,500	$0	$0	$0	$0
26	**Total CIP**	**$0**	**$3,321,890**	**$7,476,219**	**$11,830,282**	**$10,224,132**	**$3,006,851**

Table 4-15 shows the assumed funding sources for Water CIP projects over the study period. Proposed debt proceeds are assumed to fund most of the Water CIP projects over the planning period to minimize increases to rates. All remaining CIP not funded by existing/remaining bond proceeds, or future revenue bonds, is assumed to be funded by cash reserves generated from rates (i.e. pay-as-you-go funding). **Figure 4-1** shows a summary of total Water Enterprise CIP expenditures by funding source over the study period.

Table 4-15: Water Capital Improvement Plan Proposed Funding

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Go-Bond Funded	$0	$302,400	$315,706	$327,702	$338,189	$349,011
2	Rate Funded	$0	$0	$0	$0	$0	$726,366
3	Bond Funded	$0	$3,019,490	$7,160,513	$11,502,580	$9,885,943	$1,931,474
4	**Total Funded CIP**	**$0**	**$3,321,890**	**$7,476,219**	**$11,830,282**	**$10,224,132**	**$3,006,851**

Figure 4-1: Water Capital Improvement Plan



4.2.5. Water Financial Policies

Required Debt Coverage
The Water utility is required to meet debt service coverage requirements on its outstanding water revenue bonds. The required minimum debt coverage ratio is 1.20, meaning that the utility's net operating revenues (i.e. total operating revenues less operating expenses) must achieve at least 1.20 times the amount of annual debt service. Failure to meet debt service coverage results in a technical default, which without foreseeable remedial action such as implementing rate increases, could result in a downgrade of credit rating, higher costs in future debt issuance, or even denial of credit.

Reserve Targets
Adequate cash reserves are required to meet operating, capital, and debt service requirements. Operating reserves provide funds to meet ongoing cash flow requirements related to operating expenses. The current reserve target is equal to 14 months of annual operating expenses (which includes both O&M and debt service), and the minimum reserve target is equal to 10 months of annual O&M expenses. **Table 4-16** shows projected operating and capital reserve targets over the study period based on the policies outlined above. No changes are proposed to the City's existing wastewater reserve policies.

Table 4-16: Projected Water Reserve Targets

	A	B	C	D	E	F	G
Line	Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	Reserve – 14 Months	$9,489,613	$9,118,393	$9,567,887	$11,475,183	$11,813,539	$12,177,040
2	Reserve – 10 Months	$6,778,295	$6,513,138	$6,834,205	$8,196,559	$8,438,242	$8,697,886

4.2.6. Status Quo Water Financial Plan

Raftelis develops a status quo (i.e., current rate revenues) financial plan to evaluate the need for future revenue adjustments (i.e. increases to gross rate revenues). The status quo financial plan assumes that current FY 2023 rates remain unchanged over the study period.

Table 4-17 combines projected Fund 561 revenues (from **Table 4-11**), O&M expenses (from **Table 4-12**), and debt service (from **Table 4-13**) to generate operating cash flow projections under the status quo. In the absence of any revenue adjustments, the Water Operating Fund (Fund 561) will fail to generate sufficient revenue to recover O&M expenses and debt service, and net cash generation becomes increasingly negative in subsequent years.

Table 4-17: Water Operating Cash Flow (Fund 561)– Status Quo Financial Plan

Line	A Description	B	C FY 2023	D FY 2024	E FY 2025	F FY 2026	G FY 2027	H FY 2028
1	Revenues							
2	Revenue from Existing Rates		$6,672,271	$7,230,857	$7,255,117	$7,279,521	$7,304,070	$7,328,764
3								
4	Revenue Adjustments	Adjustment						
5	FY 2023	0.0%	$0	$0	$0	$0	$0	$0
6	FY 2024	0.0%		$0	$0	$0	$0	$0
7	FY 2025	0.0%			$0	$0	$0	$0
8	FY 2026	0.0%				$0	$0	$0
9	FY 2027	0.0%					$0	$0
10	FY 2028	0.0%						$0
11	Revenue Adjustment Totals		$0	$0	$0	$0	$0	$0
12	Total Revenues from Rates		$6,672,271	$7,230,857	$7,255,117	$7,279,521	$7,304,070	$7,328,764
13	Other Operating Revenue		$7,150	$34,150	$34,150	$34,150	$34,150	$34,150
14	Investment Income		$50,000	$15,234	$8,074	$0	$0	$0
15	**Total - Revenues**		**$6,729,421**	**$7,280,241**	**$7,297,341**	**$7,313,671**	**$7,338,220**	**$7,362,914**
16								
17	Operating Expenses							
18	Operating Expenses		$5,569,277	$6,251,002	$6,636,549	$6,926,137	$7,220,845	$7,529,145
19	One Time Expenses		$1,614,000	$0	$0	$0	$0	$0
20	**Total - Operating Expenses**		**$7,183,277**	**$6,251,002**	**$6,636,549**	**$6,926,137**	**$7,220,845**	**$7,529,145**
21								
22	Net Revenue		-$453,856	$1,029,239	$660,792	$387,534	$117,374	-$166,231
23								
24	Existing Debt Service		$950,677	$951,414	$951,147	$952,857	$948,168	$951,441
25	Proposed Debt Service		$0	$613,350	$613,350	$1,956,877	$1,956,877	$1,956,877
26	**Annual Debt Service**		**$950,677**	**$1,564,764**	**$1,564,497**	**$2,909,734**	**$2,905,045**	**$2,908,318**
27								
28	**Net Cash After Debt Service**		**-$1,404,533**	**-$535,524**	**-$903,704**	**-$2,522,200**	**-$2,787,671**	**-$3,074,549**
29								
30	Debt Service Coverage							
31	Calculated Coverage		-0.48	0.66	0.42	0.13	0.04	-0.06
32	Target Coverage		1.20	1.20	1.20	1.20	1.20	1.20

Table 4-18 shows projected reserve balances and debt coverage under the status quo financial plan for the entire Water utility, including both the Water Operating Fund (Fund 561), Water Capital Project Fund (Fund 763), and the Water Impact Fund (764). Sources of funds include rate and non-rate revenues (from **Table 4-11**) as well as debt proceeds. Use of funds include O&M expenses (from **Table 4-12**), debt service (from **Table 4-13**), and CIP expenditures (from **Table 4-15**). All ending balance and debt coverage figures are projected values. Target reserve balances shown are from **Table 4-16**.

Under the status-quo financial plan, reserves are projected to fall below the minimum target every year of the study period. Debt coverage is projected to fall well below the required ratio in all years. The status quo financial plan is insufficient to meet the Water utility's financial needs over the study period. This demonstrates a clear need for revenue adjustments over the study period to increase rate revenues and ensure financial sustainability.

Table 4-18: Status Quo Water Financial Plan Pro Forma (Funds 561, 763, 764)

	A	B	C	D	E	F
Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	**Beginning Balances**	**$2,102,348**	**$1,600,808**	**$731,426**	**($1,756,107)**	**($4,508,765)**
2						
3	**Source of Funds**					
4	Revenue from Existing Rates	$7,230,857	$7,255,117	$7,279,521	$7,304,070	$7,328,764
5	Total Revenue Adjustments	$0	$0	$0	$0	$0
6	Other Operating Revenue	$34,150	$34,150	$34,150	$34,150	$34,150
7	Investment Income	$15,234	$8,074	$0	$0	$0
8	Water Capital Revenues	$0	$0	$0	$0	$0
9	Water Impact Fee Revenues	$35,279	$35,619	$35,962	$36,309	$36,659
10	Bond Proceeds CIP Funding	$3,019,490	$7,160,513	$11,502,580	$9,885,943	$1,931,474
11	SRF Proceeds	$0	$0	$0	$0	$0
12	Go Bond Proceeds	$302,400	$315,706	$327,702	$338,189	$349,011
13	Interfund CIP Funding	$0	$0	$0	$0	$0
14	General Fund Loan (+Funds/-Payment)	$0	$0	$0	$0	$0
15	**Total Source of Funds**	**$10,637,411**	**$14,809,179**	**$19,179,915**	**$17,598,661**	**$9,680,057**
16						
17	**Use of Funds**					
18	Operating Expenses	$6,251,002	$6,636,549	$6,926,137	$7,220,845	$7,529,145
19	One Time Expenses	$0	$0	$0	$0	$0
20	Water Impact Fund Expenses	$1,296	$1,296	$1,296	$1,296	$1,296
21	Rate Funded	$0	$0	$0	$0	$726,366
22	Bond Funded	$3,019,490	$7,160,513	$11,502,580	$9,885,943	$1,931,474
23	Interfund Loan Funded	$0	$0	$0	$0	$0
24	Existing Debt Service	$951,414	$951,147	$952,857	$948,168	$951,441
25	Proposed Debt Service	$613,350	$613,350	$1,956,877	$1,956,877	$1,956,877
26	Water Capital Expenses	$0	$0	$0	$0	$0
27	SRF CIP	$0	$0	$0	$0	$0
28	GO Bond	$302,400	$315,706	$327,702	$338,189	$349,011
29	**Total Use of Funds**	**$11,138,951**	**$15,678,560**	**$21,667,449**	**$20,351,318**	**$13,445,610**
30						
31	**Ending Balance**	**$1,600,808**	**$731,426**	**($1,756,107)**	**($4,508,765)**	**($8,274,318)**

4.2.7. Proposed Water Financial Plan

The Water utility must increase its revenues from water rates over the study period to adequately fund its operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding. Raftelis worked closely with City staff and the RSAC over nearly a dozen public meetings to identify financial plan options for consideration. The selected financial plan and annual revenue adjustments are shown in **Table 4-19**. Revenue adjustments represent annual percent increases to total rate revenue relative to rate revenue generated by the prior year's water rates.

Table 4-19: Proposed Water Revenue Adjustments

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	Effective Month	July 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
2	Revenue Adjustments	28%	8%	8%	8%	8%

Table 4-20 combines projected Fund 561 revenues (from **Table 4-11**), O&M expenses (from **Table 4-12**), and debt service (from **Table 4-13**) to generate operating cash flow projections under the proposed financial plan. By implementing the proposed revenue adjustments, we project that the Water Fund (Fund 561) will maintain sufficient operating cash flow and debt coverage through the study period. **Appendix A** shows the proposed 10-year pro forma for the entire Water utility, including both the Water Fund (Fund 561), Water Capital Project Fund (Fund 763), and the Water Impact Fund (764). Under the proposed financial plan, reserve balances and debt coverage are projected to achieve target policies and minimum requirements in all years of the rate-setting period.

Table 4-20: Water Operating Cash Flow (Fund 561) – Proposed Financial Plan

Line	A Description	B	C FY 2023	D FY 2024	E FY 2025	F FY 2026	G FY 2027	H FY 2028
1	Revenues							
2	Revenue from Existing Rates		$6,672,271	$7,230,857	$7,255,117	$7,279,521	$7,304,070	$7,328,764
3								
4	Revenue Adjustments	Adjustment						
5	FY 2023	0.0%	$0	$0	$0	$0	$0	$0
6	FY 2024	28.0%		$2,024,640	$2,031,433	$2,038,266	$2,045,139	$2,052,054
7	FY 2025	8.0%			$742,924	$745,423	$747,937	$750,465
8	FY 2026	8.0%				$805,057	$807,772	$810,503
9	FY 2027	8.0%					$872,393	$875,343
10	FY 2028	8.0%						$945,370
11	Revenue Adjustment Totals		$0	$2,024,640	$2,774,357	$3,588,746	$4,473,241	$5,433,735
12	Total Revenues from Rates		$6,672,271	$9,255,497	$10,029,474	$10,868,267	$11,777,311	$12,762,498
13	Other Operating Revenue		$7,150	$34,150	$34,150	$34,150	$34,150	$34,150
14	Investment Income		$50,000	$25,358	$42,293	$57,362	$71,696	$92,637
15	**Total – Revenues**		**$6,729,421**	**$9,315,004**	**$10,105,917**	**$10,959,779**	**$11,883,157**	**$12,889,285**
16								
17	Operating Expenses							
18	Operating Expenses		$5,569,277	$6,251,002	$6,636,549	$6,926,137	$7,220,845	$7,529,145
19	One Time Expenses		$1,614,000	$0	$0	$0	$0	$0
20	**Total - Operating Expenses**		**$7,183,277**	**$6,251,002**	**$6,636,549**	**$6,926,137**	**$7,220,845**	**$7,529,145**
21								
22	Net Revenue		-$453,856	$3,064,002	$3,469,368	$4,033,642	$4,662,312	$5,360,140
23								
24	Existing Debt Service		$950,677	$951,414	$951,147	$952,857	$948,168	$951,441
25	Proposed Debt Service		$0	$613,350	$613,350	$1,956,877	$1,956,877	$1,956,877
26	**Annual Debt Service**		**$950,677**	**$1,564,764**	**$1,564,497**	**$2,909,734**	**$2,905,045**	**$2,908,318**
27								
28	**Net Cash After Debt Service**		**-$1,404,533**	**$1,499,239**	**$1,904,872**	**$1,123,908**	**$1,757,267**	**$2,451,822**
29								
30	Debt Service Coverage							
31	Calculated Coverage		-0.48	1.96	2.22	1.39	1.60	1.84
32	Target Coverage		1.20	1.20	1.20	1.20	1.20	1.20

Figure 4-2 shows projected debt coverage (blue line) relative to the debt coverage requirement (gray line) over the study period. Debt coverage is expected to drop in FY 2025-26 and FY 2028-29 due to additional bond issuances, before increasing in future years.

Figure 4-2: Proposed Water Financial Plan – Projected Debt Coverage

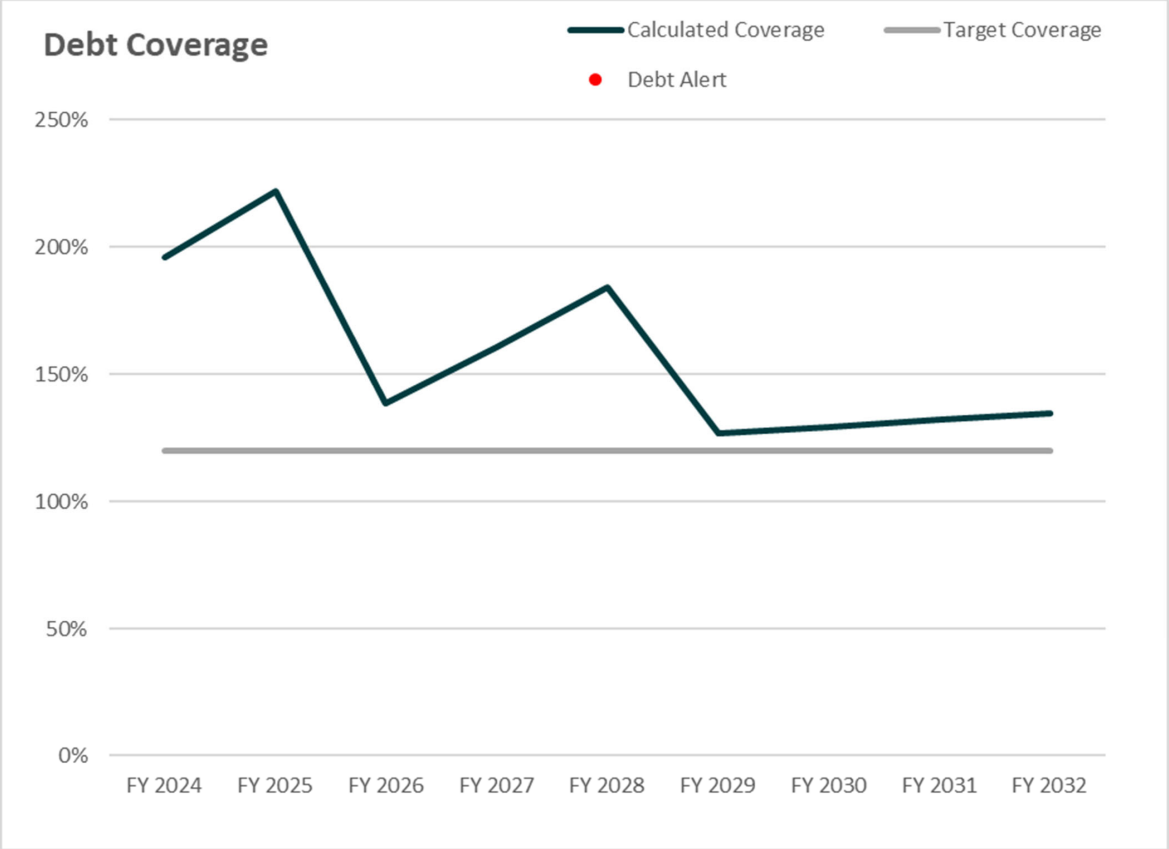


Figure 4-3 shows the Water utility's projected ending balance under the proposed financial plan. The light blue bars indicate the ending balance. The total reserve target is represented by the blue line and the reserve target minimum is represented by the yellow line. The Water enterprise is projected to build up cash reserves through the planning period. By the end of the planning period, the Water utility's reserves are projected to achieve the adopted reserve policy target.

Figure 4-3: Proposed Water Financial Plan – Projected Ending Balances

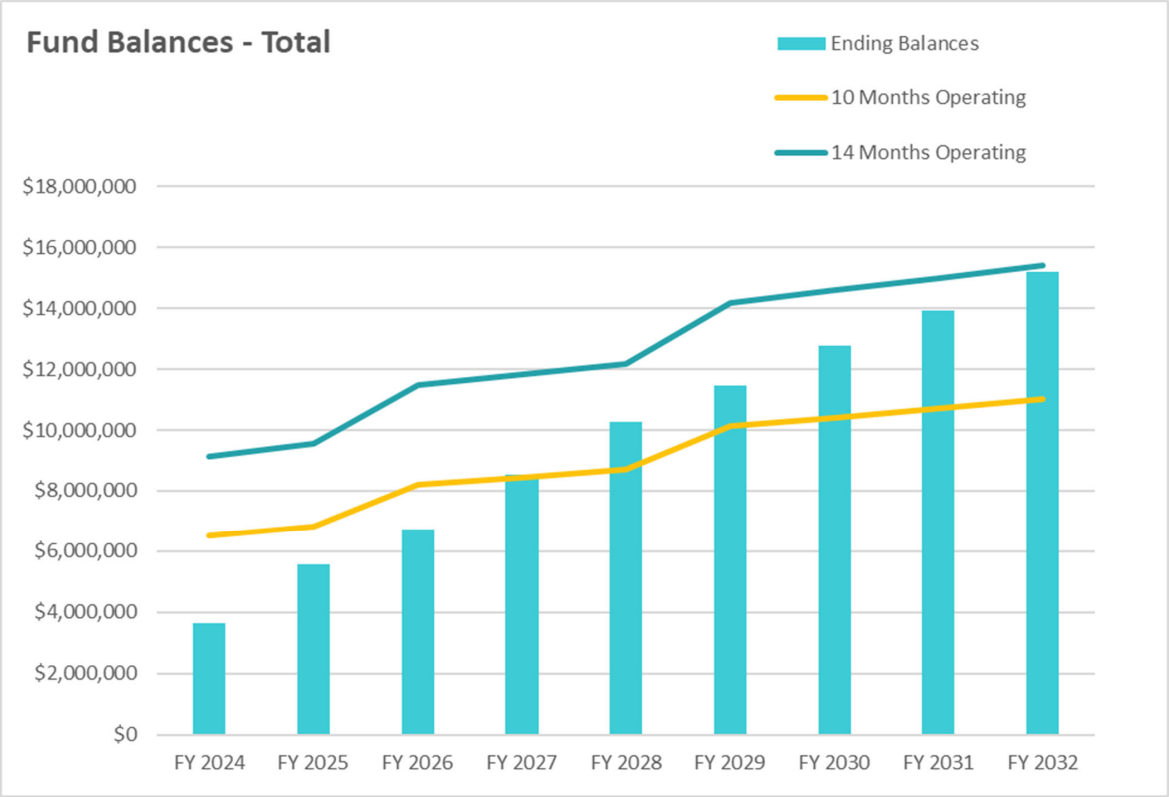
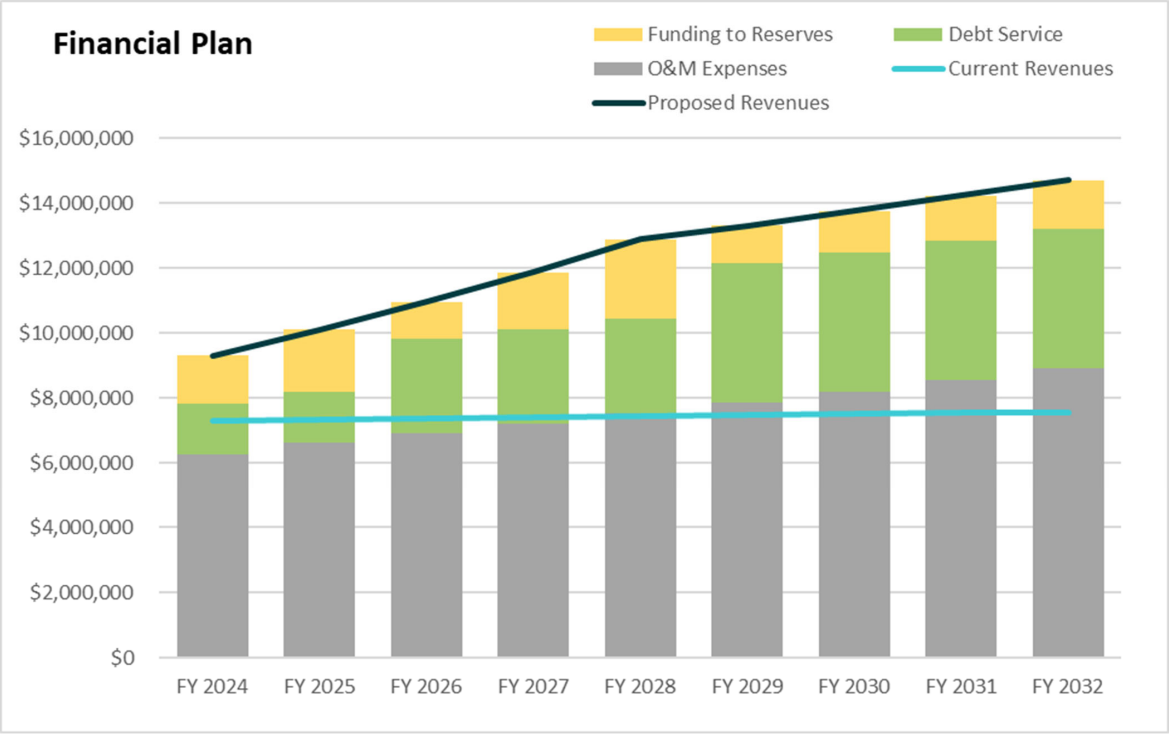


Figure 4-4 shows the proposed versus status quo operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and blue lines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding are represented by the various stacked bars. Revenue adjustments are required to generate sufficient revenue to recover O&M expenses and debt service payments over the planning period.

Figure 4-4: Proposed vs. Status Quo Water Financial Plan



4.3. Water Cost of Service Analysis

Section 4.3 details the cost of service (COS) analysis performed for the Water utility for FY 2024. The COS analysis allocates the overall rate revenue requirement to customer classes based on their proportion of use and burden on the water system. This provides the basis for the development of proposed water rates through FY 2028.

4.3.1. Methodology

The first step in a COS analysis is to determine the revenue required from water rates. The total revenue requirement results from the financial plans. The framework and methodology utilized to develop the COS analysis and to apportion the revenue requirement to each customer class and tier is informed by the processes outlined in the AWWA's Manual M1.

COS analyses are tailored to meet the specific needs of each water system. However, there are four distinct steps in every COS analysis to recover costs from customers in an accurate and fair manner:

1. **Cost functionalization:** O&M expenses and capital assets are categorized by their function in the system. Sample functions may include water supply, treatment, distribution, transmission, customer service, etc.
2. **Cost causation component allocation:** Functionalized costs are then allocated to cost causation components based on their burden on the system. The cost causation components include water supply, base delivery, extra-capacity, meters, and customer, among others. The revenue requirement is allocated accordingly to the cost causation components and results in the total share of the revenue requirement attributable to each cost component.
3. **Unit cost development:** The revenue requirement for each cost causation component is divided by the appropriate units of service to determine the unit cost of each.
4. **Revenue requirement distribution:** The unit cost is utilized to distribute the revenue requirement for each cost causation component to customer classes based on each customer class's individual service units.

This method of functionalizing costs is consistent with the AWWA's Manual M1 and is widely used in the water industry to inform COS analyses.

4.3.2. Water Rate Revenue Requirement

Table 4-21 shows the rate revenue requirement for FY 2024 (also referred to as the test year). The revenue requirement is split into operating and capital (Columns C and D), which are later allocated based on either O&M expenses or capital asset valuation. The revenue requirements (Lines 2-6) are equal to FY 2024 operating expenses plus debt service. The revenue offsets (Lines 10-12) include miscellaneous rate revenue not subject to revenue adjustments and all Fund 561 non-rate revenues. These revenues are applied as offsets to the final rate revenue requirement. The adjustment for cash balance (Line 16) is equal to FY 2024 negative net operating cash flow and represents the additional rate revenue required to replenish cash reserves in FY 2024. All values are from the proposed water financial plan operating cash flow (**Table 4-20**). The final rate revenue requirement (Line 20) is calculated as follows:

Total revenue required from rates (Line 20) = Revenue requirements (Line 7) - Revenue offsets (Line 13) - Adjustments (Line 18)

Table 4-21: FY 2023-24 Water Rate Revenue Requirement

Line	A Description	B Operating	C Capital	D Total
1	**Revenue Requirement**			
2	Operating Expenses	$6,251,002	$0	$6,251,002
3	One Time Expenses	$0	$0	$0
4	Existing Debt Service	$0	$951,414	$951,414
5	Proposed Debt Service	$0	$613,350	$613,350
6	Water Capital Expenses	$0	$0	$0
7	**Total**	**$6,251,002**	**$1,564,764**	**$7,815,765**
8				
9	**Revenue Offsets**			
10	Other Operating Revenue	$34,150	$0	$34,150
11	Investment Income	$25,358	$0	$25,358
12	Water Capital Revenues	$0	$0	$0
13	**Total Revenue Offsets**	**$59,508**	**$0**	**$59,508**
14				
15	**Adjustments**			
16	Adjustment for Cash Balance	$0	($1,499,239)	($1,499,239)
17	Adjustment for Mid-Year Increase	$0	$0	$0
18	**Total - Adjustments**	**$0**	**($1,499,239)**	**($1,499,239)**
19				
20	**Total Revenue Requirement**	**$6,191,494**	**$3,064,002**	**$9,255,497**

4.3.3. Water System Peaking Factors

A significant portion of the costs of any water system are based on the peaking characteristics of customers plus fireflow capacity. A water system is designed to meet different requirements, including average demands extra-capacity ("peak demands") demands, and capacity for firefighting. Peaking costs are divided into maximum day (Max Day) and maximum hour (Max Hour). The Max Day demand is the maximum volume of water used in a single day over a full year. The Max Hour demand is the maximum use in an hour on the Max Day. For example, storage and treatment components of the water system are designed to handle Max Day requirements while the distribution system is designed for Max Hour demands.

Table 4-22 shows system-wide peaking factors for the City's water system, which are used to derive the cost component allocation bases for Base Delivery, Max Day, and Max Hour costs. Base Delivery use is considered average daily demand over one year, which has been normalized to a factor of 1.00 (Column C, Line 1). The Max Day peaking factor (Column C, Line 2) indicates that the Max Day demand is **1.82** times greater than the average daily demand. Similarly, the Max Hour peaking factor (Column C, Line 3) shows that the Max Hour demand is **2.91** times greater than average demand. The allocation bases (Columns D-F) are calculated using the equations outlined below. Columns are represented in these equations as letters, and lines are represented as numbers. For example, Column D, Line 2 is shown as D2.

The Max Day allocations are calculated as follows:

- Base Delivery: *C1 / C2 x 100% = D2*
- Max Day: *(C2 - C1) / C2 x 100% = E2*

The Max Hour allocations are calculated as follows:

- Base Delivery: *C1 / C3 x 100% = D3*
- Max Day: *(C2 - C1) / C3 x 100% = E3*
- Max Hour: *(C3 - C2) / C3 x 100% = F3*

Table 4-22: Water System Peaking Factor Allocations

Line	A Description	B Peaking Factors	C Base	D Max Day	E Max Hour	F Total
1	Base	1.00	100.0%	0.0%	0.0%	100.0%
2	Max Day	1.82	54.9%	45.1%	0.0%	100.0%
3	Max Hour	2.91	34.4%	28.2%	37.5%	100.0%

4.3.4. Functionalization and Allocation of Expenses

After determining the revenue requirement and systemwide peaking allocation basis, the next step of the water COS analysis is to allocate O&M expenses and capital assets to the following functional categories:

- **Water Supply**: costs related to producing and/or purchasing water supply
- **Pumping**: costs related to the electrical cost of moving water through the system
- **Storage**: costs related to water storage tanks and reservoirs
- **Treatment**: costs associated with treating water to drinking water standards
- **Transmission**: costs associated with transmitting through larger pipes from treatment facilities and interconnections to storage facilities
- **Distribution**: costs related to delivering water to customers from storage facilities to the meter
- **Conservation**: costs associated with water conservation, outreach, and efficiency programs
- **Billing and Customer Service**: costs of meter reading, billing, and other customer service functions
- **Meters**: costs of meter maintenance and meter servicing
- **Fire Protection**: costs directly attributable to private fire protection
- **General/Admin**: costs associated with general administration of the Water Enterprise (i.e. indirect costs)
- **General and Conservation**: costs within the City's budget organization that are associated in part with water conservation, outreach, and efficiency programs and in part general in nature (and therefore allocated based on the overall allocation of general costs
- **Revenue Offset**: miscellaneous revenue that can be used to offset costs

The functionalization of costs allows for the allocation of costs to cost causation components. Some cost causation components correspond directly to a functional category listed above. The cost causation components include:

- **Water Supply**: directly associated with the Water Supply functional category
- **Base Delivery**: costs associated with providing water during average water demand conditions

- **Peaking** (Max Day and Max Hour): extra-capacity costs associated with providing water during peak demand conditions
- **Conservation**: directly associated with the Conservation functional category
- **Customer**: directly associated with the Customer functional category
- **Meters**: directly associated with the Meters functional category
- **Fire Protection**: costs associated with fire protection
- **General**: directly associated with the General/Admin functional category
- **Revenue Offsets**: miscellaneous revenues applied as offsets to the rate revenue requirement

Table 4-23 shows the basis for allocating each functional category to the various cost causation components. This provides the basis for allocating O&M and capital expenses in the following subsections. Most functional categories are allocated entirely to the corresponding cost causation component. The allocation basis for functional categories not allocated entirely to a single cost causation component is as follows:

- **Functional categories allocated based on Max Day demand**: Storage, treatment, and transmission infrastructure is designed to accommodate maximum day water demands, plus fireflow. Therefore, all storage, treatment, and transmission costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from **Table 4-22**.

- **Functional categories allocated based on Max Hour demand**: Distribution infrastructure is designed to accommodate maximum hour water demands, plus fireflow. Therefore, all distribution costs are allocated to the Base Delivery, Max Day, and Max Hour cost causation components based on the Max Hour allocation from **Table 4-22**.

- **Conservation and General Operating**: Conservation costs are co-mingled within specific operating budget line items. Raftelis worked with City staff to accurately allocate direct conservation costs and indirect general/administrative costs within these cost centers.

Water Supply: The City has three sources of water supply. All costs related to producing, pumping, and/or purchasing water from these sources is allocated to the supply cost component. Further in the COS these sources are differentiated and form the basis for the water use rates.

Table 4-23: Allocation of Functional Categories to Water Cost Causation Components

Line	A Functions	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Custo-mer	I General	J Conser-vation	K Revenue Offset	L Total
1	Supply	100%										100%
2	Pumping	100%										100%
3	Storage		55%	45%	0%							100%
4	Treatment		55%	45%	0%							100%
5	Transmission		55%	45%	0%							100%
6	Distribution		34%	28%	37%							100%
7	Fire					100%						100%
8	Meter Service						100%					100%
9	Billing & CS							100%				100%
10	General & Admin								100%			100%
11	Conservation									100%		100%
12	Conservation/General								75%	25%		100%
13	Revenue Offset										100%	100%

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4.3.5. Water O&M Expense Allocation

The next step of the COS analysis is to develop an allocation basis for the operating revenue requirement based on the functionalization of the Water O&M expenses. Raftelis worked with City staff to allocate O&M expenses, by line item, to the most closely associated functional category. **Table 4-24** shows a summary of FY 2024 O&M expenses by functional category. This intermediate step is necessary to allocate total O&M expenses to individual cost causation components.

Table 4-24: Summary of Water O&M Expenses by Functional Category

Line	A Function	B FY 2024 O&M Expenses	C Percent of Total
1	Supply	$1,820,121	29.1%
2	Pumping	$158,055	2.5%
3	Storage	$0	0.0%
4	Treatment	$1,145,451	18.3%
5	Transmission	$0	0.0%
6	Distribution	$702,100	11.2%
7	Fire	$0	0.0%
8	Meter Service	$24,150	0.4%
9	Billing & CS	$397,919	6.4%
10	General & Admin	$1,591,517	25.5%
11	Conservation	$31,500	0.5%
12	Conservation and General	$380,188	6.1%
13	Revenue Offset	$0	0.0%
14	**Total**	**$6,251,002**	**100.0%**

Table 4-25 shows the allocation of FY 2024 O&M expenses by functional category to each cost causation component. The allocation of each functional category (Columns B-K) to the various cost causation components was determined in **Table 4-23**. Total O&M expenses associated with each functional category (Column L) was determined in **Table 4-24**. The total dollar amount allocated to each cost causation component (Line 14) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories.

For example, 100 percent (Column B, Line 1) of Water Supply costs (Column L, Line 1) are allocated to the Water Supply cost causation factor total (Column B, Line 14).
Table 4-25 shows the allocation of FY 2024 O&M expenses by functional category to each cost causation component. The allocation of each functional category (Columns B-K) to the various cost causation components was determined in **Table 4-23**. Total O&M expenses associated with each functional category (Column L) was determined in **Table 4-24**. The total dollar amount allocated to each cost causation component (Line 14) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories.

For example, 100 percent (Column B, Line 1) of Water Supply costs (Column L, Line 1) are allocated to the Water Supply cost causation factor total (Column B, Line 14). The same calculation is performed for the remaining functional categories. The subtotals in Lines 1-13 are summed to determine the total dollar amount

allocated to the Water Supply cost causation factor (Column B, Line 14). The same calculations are repeated for the remaining cost causation components (Columns C-K) to determine the allocation of O&M expenses to each cost causation component (Line 14). The total operating revenue requirement (Column L, Line 14) equals the operating revenue requirement from **Table 4-21**, Column B, Line 21. The O&M allocation percentages (Line 16) represent the proportion of total O&M expenses allocated to each cost causation component (Line 14).

Table 4-25: Allocation of Water O&M Expenses to Cost Causation Components

Line	A Function	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Customer	I General	J Conserva-tion	K Revenue Offset	L Total
1	Supply	$1,820,121	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,820,121
2	Pumping	$158,055	$0	$0	$0	$0	$0	$0	$0	$0	$0	$158,055
3	Storage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Treatment	$0	$629,369	$516,083	$0	$0	$0	$0	$0	$0	$0	$1,145,451
5	Transmission	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Distribution	$0	$241,271	$197,843	$262,986	$0	$0	$0	$0	$0	$0	$702,100
7	Fire	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Meter Service	$0	$0	$0	$0	$0	$24,150	$0	$0	$0	$0	$24,150
9	Billing & CS	$0	$0	$0	$0	$0	$0	$397,919	$0	$0	$0	$397,919
10	General & Admin	$0	$0	$0	$0	$0	$0	$0	$1,591,517	$0	$0	$1,591,517
11	Conservation	$0	$0	$0	$0	$0	$0	$0	$0	$31,500	$0	$31,500
12	Conservation and General	$0	$0	$0	$0	$0	$0	$0	$285,089	$95,099	$0	$380,188
13	Revenue Offset	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	**Total**	**$1,978,176**	**$870,640**	**$713,925**	**$262,986**	**$0**	**$24,150**	**$397,919**	**$1,876,606**	**$126,599**	**$0**	**$6,251,002**
15	% Allocation	31.6%	13.9%	11.4%	4.2%	0.0%	0.4%	6.4%	30.0%	2.0%	0.0%	100.0%
16	% Allocation - G&A Proportionally Allocated	45.2%	19.9%	16.3%	6.0%	0.0%	0.6%	9.1%	0.0%	2.9%	0.0%	100.0%

4.3.6. Water Capital Allocation

Capital assets are utilized in COS analyses to allocate the capital revenue requirement to the various cost causation components. The distribution of short-term CIP project costs can be heavily weighted to specific cost causation components based on the type of projects. Use of short-term plans to allocate capital costs may cause rates to fluctuate and result in customer confusion. The overall water asset base however is considerably stable in the long-term, and therefore is more representative of long-term capital investment in the City's Water's water system. Thus, functionalized capital assets are used to allocate capital costs.

City staff provided Raftelis with a detailed asset listing that included the original cost of each individual asset. Raftelis calculated the replacement cost less depreciation (RCLD) of each asset based on net book value using the Engineering News-Record's (ENR) 20-City Average Cost Construction Index (CCI) for San Francisco to account for capital cost inflation. As part of the capital asset analysis, Raftelis assigned each individual asset to a functional category with the assistance of City staff. Total water asset value (RCLD) by functional category is shown in **Table 4-26.** Percentages are rounded to the nearest one-hundredth of one percent.

Table 4-26: Summary of Water Enterprise Capital Assets by Functional Category

Line	A Function	B Asset Value (RCLD)	C Percent of Total
1	Supply	$2,482,145	12.07%
2	Pumping	$0	0.00%
3	Storage	$11,136,052	54.16%
4	Treatment	$4,412,655	21.46%
5	Transmission	$0	0.00%
6	Distribution	$2,482,890	12.08%
7	Fire	$3,279	0.02%
8	Meter Service	$1,834	0.01%
9	Billing & CS	$0	0.00%
10	General & Admin	$42,789	0.21%
11	Conservation and General	$0	0.00%
12	**Total**	**$20,561,644**	**100.00%**

Table 4-27 shows the allocation of capital assets by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-K) to the various cost causation components was determined in **Table 4-23**. Total asset value associated with each functional category (Column L) was determined in **Table 4-26**. The total dollar amount allocated to each cost causation component (Line 12) is determined by multiplying the total asset value associated with each functional category by the corresponding percentage allocation and summing across all functional categories. This is consistent with the methodology used to determine the allocation of O&M expenses to cost causation components in **Table 4-25**. The final capital allocation percentages (Line 14) represent the proportion of total capital assets allocated to each cost causation component (Line 12).

The capital allocation percentages (Line 14) are used to allocate the total capital revenue requirement. The total capital revenue requirement (Column L, Line 17) equals the capital revenue requirement from **Table**

4-21, Column D, Line 15. This total is allocated to each cost causation component (Columns C-K, Line 17) based on the final capital allocation percentages (Columns C-K, Line 14).

Table 4-27: Allocation of Functionalized Water Capital Assets to Cost Causation Components

Line	A Function	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Customer	I General	J Conserva-tion	K Revenue Offset	L Total
1	Supply	$2,482,145	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,482,145
2	Pumping	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Storage	$0	$6,118,710	$5,017,342	$0	$0	$0	$0	$0	$0	$0	$11,136,052
4	Treatment	$0	$2,424,536	$1,988,119	$0	$0	$0	$0	$0	$0	$0	$4,412,655
5	Transmission	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Distribution	$0	$853,227	$699,646	$930,017	$0	$0	$0	$0	$0	$0	$2,482,890
7	Fire	$0	$0	$0	$0	$3,279	$0	$0	$0	$0	$0	$3,279
8	Meter Service	$0	$0	$0	$0	$0	$1,834	$0	$0	$0	$0	$1,834
9	Billing & CS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	General & Admin	$0	$0	$0	$0	$0	$0	$0	$42,789	$0	$0	$42,789
11	Conservation and General	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	**Total**	**$2,482,145**	**$9,396,472**	**$7,705,107**	**$930,017**	**$3,279**	**$1,834**	**$0**	**$42,789**	**$0**	**$0**	**$20,561,644**
13	% Allocation	12.1%	45.7%	37.5%	4.5%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	100.0%
14	% Allocation - G&A Proportionally Allocated	12.1%	45.8%	37.6%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

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4.3.7. Water Non-Rate Revenue (Revenue Offset) Allocation

Table 4-28 shows the allocation of non-rate revenue to each cost causation component. Other operating revenue (Column L, Line 1) is allocated using the operating allocation proportions from **Table 4-25**, Line 16. Investment Income and Water Capital Revenues (Column L, Lines 2-3) are allocated using the asset allocation proportions from **Table 4-27**, Line 14. The total dollar amount allocated to each cost causation component (Line 4) is determined by multiplying the total revenue offset by the corresponding percentage allocation and summing across all functional categories.

Table 4-28: Allocation of Revenue Offsets to Cost Causation Components

Line	A Revenue Offset	B Function	C Supply	D Base	E Max Day	F Max Hour	G Fire	H Meters	I Customer	J General	K Conservation	L Total
1	Other Operating Revenue	Operating	$15,443	$6,797	$5,573	$2,053	$0	$189	$3,106	$0	$988	$34,150
2	Investment Income	Capital	$3,067	$11,612	$9,522	$1,149	$4	$2	$0	$0	$0	$25,358
3	Water Capital Revenues	Capital	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	**Total**		**$18,511**	**$18,409**	**$15,096**	**$3,202**	**$4**	**$191**	**$3,106**	**$0**	**$988**	**$59,508**

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4.3.8. Preliminary Water Cost of Service Allocation

Table 4-29 shows the preliminary allocation of the total FY 2023-24 rate revenue requirement to the various cost causation components. The preliminary COS allocations (Column F) are subject to further adjustments based on additional reallocations developed in the following subsections. The results shown in **Table 4-29** are calculated as follows based on intermediate results developed in the preceding subsections:

1. **Operating Revenue Requirement** (Column B): The total operating revenue requirement consists solely of the Water Enterprise's O&M expenses. The allocation of the total operating revenue requirement to each cost causation component was previously determined in **Table 4-25**, Columns B-K, Line 16.

2. **Capital Revenue Requirement** (Column C): The total capital revenue requirement consists of debt service and reserve funding for future CIP. The allocation of the total capital revenue requirement to each cost causation component was previously determined in **Table 4-27**, Columns B-K, Line 14.

3. **Revenue Offsets** (Column D): The total revenue offset consists of non-rate revenue including other operating revenue, investment income, and water capital revenues. The allocation of the revenue offsets to each cost causation component was previously determined in **Table 4-28**, Columns B-K, Line 4.

4. **Reallocation of General Costs** (Column E): The total General cost allocation equals the operating revenue requirement (Column B, Line 8) and capital revenue requirement (Column C, Line 8) allocated to the General cost causation component. The total General revenue requirement is fully reallocated to all other cost causation components on a pro rata basis[3] (Column E, Lines 2-9) excluding the Water Supply cost causation component since most of the Water Supply costs are simply purchased water costs. Note that the reallocation results in a shifting of costs between cost causation components but does not change the total rate revenue requirement.

5. **Preliminary Cost of Service Allocation** (Column F): The preliminary COS allocation to each cost causation component (Column F, Lines 1-9) equals the sum of Columns B-E. Note that the total COS allocation (Column F, Line 10) equals the total FY 2024 rate revenue requirement (from **Table 4-21**, Column D, Line 20).

[3] The operating (Column C) and capital (Column D) revenue requirements are summed for each cost causation component shown in Lines 2-8. The percentage of the sum falling within each cost causation component (Lines 2-8) is multiplied by total reallocated General costs (Column F, Line 9) to determine the share of General costs reallocated to each cost causation component (Column F, Lines 2-8).

Table 4-29: Preliminary Water Cost of Service Allocation (FY 2024)

Line	A Cost Causation Component	B Operating Revenue Requirement	C Capital Revenue Requirement	D Revenue Offsets	E Reallocation of General Costs	F Preliminary COS Allocation
1	Supply	$1,978,176	$369,878	($18,511)	$0	$2,329,543
2	Base	$870,640	$1,400,219	($18,409)	$841,037	$3,093,487
3	Max Day	$713,925	$1,148,180	($15,096)	$689,650	$2,536,660
4	Max Hour	$262,986	$138,587	($3,202)	$148,746	$547,117
5	Fire	$0	$489	($4)	$181	$665
6	Meters	$24,150	$273	($191)	$9,048	$33,281
7	Customer	$397,919	$0	($3,106)	$147,418	$542,231
8	General	$1,876,606	$6,376	$0	($1,882,982)	$0
9	Conservation	$126,599	$0	($988)	$46,902	$172,513
10	**Total**	**$6,251,002**	**$3,064,002**	**($59,508)**	**$0**	**$9,255,497**

1.2.9. Allocation of Fire Protection Costs

Water systems provide two types of fire protection: fire flows for fire protection from fire hydrants for firefighting; and fire flows from fire lines for private structures with fire suppression sprinkler systems. In 2020, Senate Bill No. 1386 was enacted into California law, and it added Section 53750.5 to the part of the California Government Code known as the Proposition 218 Omnibus Implementation Act, and it reads as follows:

(a) The Legislature finds and declares all of the following:

(1) Fire service is a different and distinct service from water service, which is one of several other property-related services that aids in the provision of fire service provided to properties.

(2) Hydrants are part of the system of public improvements described in subdivision (n) of Section 53750.

(3) Hydrants are generally designed, installed, and used to provide an immediately available water service to aid in extinguishing fires that threaten property served by a water service provider, and are generally not designed or installed to provide water service to aid in extinguishing fires that threaten property not served by a water service provider or wildfires. Hydrants are also used by a water service provider for water system operations and maintenance.

(4) Hydrants are generally located in proximity to properties served by a water service provider to facilitate water service to those properties. Hydrants and the water distributed through them have a direct relationship to property ownership because hydrants are generally sized based upon property use and then are installed when parcels are developed or connected to a water system.

(5) Hydrants and the water distributed through them are not available to the public at large in substantially the same manner as they are to property owners served by a water service provider because hydrants are designed, installed, and used to serve properties receiving water service, and the public at large does not generally have access to water through those hydrants. Incidental or other de minimis use of hydrants and the

water distributed through them for other purposes does not change their essential character as a property-related service.

(6) Hydrants and the water distributed through them are part of the property-related water service provided to all property owners served by a water service provider. Through hydrants, water is immediately available to those properties to aid in extinguishing a fire that directly threatens them. The cost associated with this aspect of water service is proportionately allocable among properties that may receive a reasonably similar level of service from the immediate availability of water to aid in extinguishing fires that directly or indirectly threaten those properties.

(7) Property-related water service costs may include, but are not limited to, any costs associated with constructing, maintaining, repairing, upgrading, and replacing hydrants, and costs associated with obtaining, treating, and distributing adequate volumes of water to meet the water demands of properties served by the water service provider, including water supplied for firefighting purposes. The fees or charges related to those costs are imposed upon a parcel or person as an incident of property ownership.

(b) The fees or charges for property-related water service imposed or increased pursuant to Section 6 of Article XIII D of the California Constitution may include the costs to construct, maintain, repair, or replace hydrants as needed or consistent with applicable fire codes and industry standards, and may include the cost of water distributed through hydrants. In addition to any other method consistent with Section 6 of Article XIII D of the California Constitution, fees or charges for the aspects of water service related to hydrants and the water distributed through them may be fixed and collected as a separate fee or charge, or included in the other water rates and charges fixed and collected by a public agency, as provided for in Section 53069.9 of the Government Code.

(c) For the purpose of this section, "hydrants" means all hydrants and other infrastructure used to distribute water that aids in the protection of property from fire, and all related or appurtenant infrastructure and facilities owned by a water service provider necessary or convenient for distributing water that aids in the protection of property from fire, including adequately sized and pressurized lines, pumps, and all appurtenances, but does not include privately owned hydrants or other private fire response related infrastructure.

(d) This section is declaratory of existing law.

This provision is declarative of existing law, and clarifies that the costs of water service chargeable to property owners include the cost of infrastructure, such as fire hydrants, that provide fire protection for nearby properties. Raftelis confirmed with City staff that this provision is consistent with the City's operations and use of fire hydrants.

Raftelis performed a fire demand analysis to determine the share of Fire Protection costs allocated to fire hydrants (hydrant fire flow) and private fire lines (private fire). The City provided Raftelis with a count of fire hydrants connected to its water system. The projected number of private fire lines in FY 2024 was previously shown in **Table 4-5.**

Table 4-30 and **Table 4-31** show the calculation of equivalent fire demand associated with private fire lines and fire hydrants, respectively. Each connection size has a fire flow demand factor similar to the hydraulic capacity factor of a water meter. The diameter of the connection (in inches) is divided by 6 (to normalize to a 6-inch hydrant connection) and then raised to the power of 2.63 to determine the fire flow demand factor (Column C).[4] The fire flow demand factor (Column C) is multiplied by the number of connections by size (Column B) to calculate equivalent fire demand (Column D). Total equivalent fire demand is shown for private fire lines and public fire hydrants in Line 10 and Line 12, respectively.

Table 4-30: Private Fire Line Equivalent Fire Demand

Line	A Fireline Size/Meter Size	B Number of Fire Connections	C Potential Demand per Connection	D Equivalent Potential Demands
7	4"	57	44.02	2,509
8	6"	29	133.15	3,861
9	8"	15	292.04	4,381
10	**Totals**	**101**		**10,751**

Table 4-31: Public Fire Hydrant Equivalent Fire Demand

Line	A Hydrant	B Number of Public Hydrants	C Potential Demand per Connection	D Equivalent Potential Demands
1	4"	20	44	880
2	6"	143	133	19,041
3	8"	136	292	39,717
4	10"	2	537	1,074
5	12"	37	883	32,686
6	14"	9	1,346	12,111
7	16"	3	1,938	5,813
11	24"	3	5,861	17,583
12	**Total**	**353**		**128,905**

Table 4-32 shows the percentage of equivalent fire demand units associated with fire hydrants and private fire lines (from **Table 4-30**). The proportional share of equivalent fire demand (Column B, Lines 2-3) provides the basis for which Fire Protection costs are allocated in subsequent steps of the COS analysis.

Table 4-32: Fire Protection Allocation Basis

Line	A Description	B
1	Total Potential Fire Demand	139,656
2	Percent Allocated to Public Fire Protection	92%
3	Percent Allocated to Private Fire Protection	8%

[4] Per the Hazen-Williams equation and AWWA *Manual M1*

4.3.9. Peaking Units of Service

Peaking units of service are developed to calculate unit peaking costs (Max Day and Max Hour) for the water system and provide an objective basis with which to identify and reallocate peaking costs in subsequent steps of the COS analysis. Fire hydrants and private fire lines contribute to system capacity-related costs (i.e. peaking costs), and therefore are reallocated a portion of Max Day and Max Hour costs.

Table 4-33 shows calculations used to attribute peaking costs to customer demands based on actual water use patterns. Raftelis estimates Max Day (Column E) and Max Hour (Column H) factors based on actual FY 2022 water use and systemwide peaking factors (from **Table 4-22**). Projected FY 2024 water use in Column C (from **Table 4-6**) is divided by 365 days to determine average daily water use (Column D). Average daily use in Column D is then multiplied by the Max Day factor (Column E) to determine Max Day demand (Column F). Max Day requirements (Column G) are determined by subtracting average daily water use (Column D) from Max Day demand (Column F). Max Hour requirements (Column J) are similarly calculated. Max Hour demand (Column I) equals average daily water use (Column D) multiplied by the Max Hour factor (Column H). Max Hour requirements (Column J) equal Max Hour demand (Column I) less Max Day demand (Column F).

Table 4-33: Peaking Units of Service

Line	A Units of Service	B Bi-Monthly Tier (HCF)	C Usage (HCF)	D Average Daily Use (HCF)	E Max Day Peaking	F Max Day Demand (HCF/day)	G Max Day Add'l Capacity	H Max Hour Peaking	I Max Hour Demand (HCF/day)	J Max Hour Add'l Capacity
1	All Classes									
2	Tier 1	11	223,678	613	1.35	826	213	2.15	1,320	495
3	Tier 2	15	87,235	239	1.35	322	83	2.15	515	193
4	Tier 3	15+	248,283	680	1.35	917	236	2.15	1,466	549
5	**Total**		**559,196**	**1,532**		**2,065**	**532**		**3,301**	**1,236**

Table 4-34 shows the methodology[5] used to calculate peaking units of service associated with fire protection (Columns B and C, Lines 7-8) based on assumptions regarding the duration and water flow rate in gallons per minute (gpm) associated with an urban fire in St Helena. The flow rate and duration is informed by the City's 2020 Integrated Utility Master Plan with assistance from City Public Works staff:

Max Day Requirements (HCF/day) = Duration of Fire (hrs) × Water Use Rate (gpm) × 60 mins/hr ÷ 748.05 gallons/HCF

Max Hour Requirements (HCF/day) = [Water Use Rate (gpm) × 60 mins/hr × 24 hrs/day ÷ 748.05 gallons/HCF] – Max Day Requirements (HCF/day)

The percentage of Max Day and Max Hour requirements attributed to Fire Protection are shown in Line 14.

Table 4-34: Peaking Units for Fire Protection

Line	A Fire Assumptions	B	C
1	Fire Estimate	Max Day	Max Hour
2	Hours for Fire	4	0
3	Gals/minute	3500	3500
4			
5	Cost to Public Fire	92.3%	92.3%
6	Capacity Demanded for Fire (HCF/day)	1,123	5,615
7	Public Fire	1,036	5,182
8	Private Fire	86	432
9			
10	Total Extra Capacity - Fire and Potable (HCF/day)	1,655	6,851
11			
12	Percent of Peaking Costs due to Public Fire	62.6%	75.6%
13	Percent of Peaking Costs due to Private Fire	5.2%	6.3%
14	**Total Peaking to Fire Protection**	**67.8%**	**82.0%**

4.3.10. Adjusted Water Cost of Service

Table 4-35 shows the adjusted allocation of the water rate revenue requirement to the various cost causation components. The adjusted COS allocations (Column H) incorporates adjustments to the preliminary COS allocations developed in the preceding sub-sections and provides the underlying basis for FY 2024 rate calculations. The results shown in **Table 4-35** are calculated as follows based on intermediate results developed in the preceding subsections:

6. **Preliminary Cost of Service Allocation** (Column B): The preliminary COS allocations were developed in previous sub-sections (see **Table 4-29**, Column F, Lines 1-10)**.** The General cost causation component is excluded because all General costs were previously reallocated to other cost causation components.

7. **Reallocation of Fire Hydrant Costs** (Column C): Fire protection costs associated with fire flow for fire hydrants are reallocated to the Meters cost causation component to recover these extra-capacity costs

[5] Per the AWWA Manual M1.

from all metered connections. Preliminary Max Day (Column B, Line 3) and Max Hour costs (Column B, Line 4) associated with fire hydrants are reallocated from Max Day (Column C, Line 3) and Max Hour (Column C, Line 4) to Meters (Column C, Line 6) based on the percentage of peaking units associated with fire flow for fire hydrants (**Table 4-30**, Column B and C, Line 12). Note that the reallocation results in a shifting of costs between cost causation components but does not change the total rate revenue requirement.

8. **Reallocation of Private Fire Costs** (Column D): Preliminary peaking costs (Column B, Lines 3-4) associated with private fire protection are reallocated from Max Day (Column D, Line 3) and Max Hour (Column D, Line 4) to Fire Protection (Column D, Line 5) based on the percentage of peaking units associated with private fire lines (**Table 4-30**, Column B and C, Line 13). Note that the reallocation results in a shifting of costs between cost causation components but does not change the total rate revenue requirement.

9. **Reallocation of Peaking Costs to Meters** (Column E): The recommended rate structure from the RSAC defines a tiered rate structure based on supply availability from each source. The structure would impose the same three tier structure for all user classes. Traditionally, water use rates are differentiated by customer class based on respective peaking characteristics. In order to harmonize the RSAC recommendation with cost of service principles, the COS identifies peaking at the system level (a single user class) and then reallocates and recovers peaking costs on the meter component.

   Utilities invest in, and continuously maintain, facilities to provide capacity to meet all levels of water consumption, including peak demand. These costs must be recovered regardless of the amount of water used during a given period, so peaking costs are generally considered as fixed water system costs. Further, metered connections are sized for both average and peak demands as larger meters have higher average demands on average. For both these reasons it is a common practice to recover peaking costs through fixed charges.
   In reallocating the peaking costs to the meter, the proposed rate structure recovers 40 percent of the total revenue requirement from fixed charges (this includes Water Service Charges and Private Fire Line Service Charges) and 60 percent from variable charges (from Water Volume Rates).

10. **Adjusted Cost of Service Allocation** (Column F): The final COS allocation (Column F) equals the sum of Columns B to E. This represents the final allocation of the total water revenue requirement (from **Table 4-21**, Column D, Line 20) to the various cost causation components.

Table 4-35: Adjusted Cost of Service Allocation (Test Year FY 2024)

Line	A Cost Causation Component	B Preliminary COS Allocation	C Reallocation of Hydrant	D Reallocation of Private Fire	E Reallocation of Peaking to Meters	F Adjusted COS Allocation
1	Supply	$2,329,543	$0	$0	$0	$2,329,543
2	Base	$3,093,487	$0	$0	$0	$3,093,487
3	Max Day	$2,536,660	-$1,156,460	-$96,451	-$924,299	$359,450
4	Max Hour	$547,117	-$301,342	-$25,133	-$158,862	$61,780
5	Fire	$665	$0	$121,584	$0	$122,249
6	Meters	$33,281	$1,457,802	$0	$1,083,161	$2,574,244
7	Customer	$542,231	$0	$0	$0	$542,231
8	Conservation	$172,513	$0	$0	$0	$172,513
9	**Total**	**$9,255,497**	**$0**	**$0**	**$0**	**$9,255,497**

4.3.11. Cost of Service Reallocation

Table 4-36 shows the reallocation of the adjusted cost of service by cost causation component. Column J shows the adjusted cost of service from **Table 4-35**, Column F. Those values are multiplied by the percentages in Columns B-H to determine the reallocated costs by cost component in Line 9. Max Day and Max Hour costs are each allocated 100 percent to Meter based on the rationale described in the previous sub-section.

Table 4-36: Reallocation of Cost of Service by Cost Causation Component

Line	A Cost of Service Reallocation	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Customer	I Conservation	J Total
1	Supply	100%							0%	$2,329,543
2	Base		100%						0%	$3,093,487
3	Max Day			0%			100%		0%	$359,450
4	Max Hour				0%		100%		0%	$61,780
5	Fire					100%			0%	$122,249
6	Meters						100%		0%	$2,574,244
7	Customer							100%	0%	$542,231
8	Conservation								100%	$172,513
9	**Total**	**$2,329,543**	**$3,093,487**	**$0**	**$0**	**$122,249**	**$2,995,473**	**$542,231**	**$172,513**	**$9,255,497**

4.3.12. Unit Cost Calculation

Table 4-38 shows the calculation of unit costs for each cost causation component. The units of service depend on how the revenue will be recovered (see **Table 4-39**). The total reallocated costs in **Table 4-36**, Line 9 are divided by the units of service in Line 1 to calculate the unit costs in Line 4. Usage for Supply, Base, Max Day, Max Hour, and Conservation can be found in **Table 4-33**. Supply and Base use the total annual usage, Max Day uses Max Day additional Capacity, Max Hour uses Max Hour additional Capacity, and Conservation uses Tier 2 and Tier 3 annual usage. Fire demand is found by taking the equivalent potential demand in **Table 4-30**, Column D, Line 10 and multiplying it by 12 months to get annual private fire demand. The number of annual equivalent meters (Column G, Line 1) is found by multiplying the total equivalent meter in **Table 4-37**, Column D, Line 10 and multiplying it by six billing periods. Number of Bills (Column H, Line 1) is found by multiplying the total number of meters in **Table 4-37**, Column C, Line 10 and multiplying it by six billing periods.

Table 4-37: Units of Service – Equivalent Meters

Line	A Meter Size	B Capacity Ratio	C Number of Meters	D Equivalent Meters
1	5/8"	1.00	2,020	2,020
2	3/4"	1.00	35	35
3	SFR 1"	1.00	263	263
4	1"	2.50	124	310
5	1 1/2"	5.00	71	353
6	2"	8.00	63	506
7	3"	17.50	8	141
8	4"	31.50	11	347
9	6"	70.00	13	913
10	**Total**		**2,608**	**4,888**

Table 4-38: Unit Cost of Service by Cost Causation Component

Line	A Description	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Customer	I Conservation
1	Unit of Service	559,196	559,196	532	1,236	129,012	58,656	32,512	335,517
2		HCF	HCF	HCF/day	HCF/day	Fire demand	Eq. Meters	No. of Bills	HCF
3									
4	Unit Costs	$4.17	$5.53	$0.00	$0.00	$0.95	$51.07	$16.68	$0.51
5		$/HCF	$/HCF	$/HCF/day	$/HCF/day	$/Fire Customer	$/Eq Meters	$/ Mo./Bill	$/HCF

4.3.13. Water Cost Allocation to Rate Components

The final cost of service allocation determines how much revenue must be generated from the City's water rates and charges. Each cost causation component is recovered by either a fixed charge or water use rate (see **Table 4-39**). The basis for specific exclusions is described in further detail in **Section 4.4**.

Table 4-39: Recovery of Cost Causation Components by Charge Type

Line	A Cost Causation Component	B Associated Charge
1	Supply	Water Volume Rates
2	Base	Water Volume Rates
3	Max Day	Water Service Charges
4	Max Hour	Water Service Charges
5	Fire	Fire Line Service Charges
6	Meters	Water Service Charges
7	Customer	Water Service Charges
8	Conservation	Water Volume Rates

Table 4-40 shows projected rate revenues by component and tier for FY 2024. The costs for each component and tier were calculated by multiplying the unit cost for each cost component with the units of service for each tier or component. The costs of service in Columns B-I are summed to get the total cost of service in Column J.

Table 4-40: Cost to Serve

Line	A Class	B Supply	C Base	D Max Day	E Max Hour	F Fire	G Meters	H Customer	I Conservation	J Total
1	Fixed Charges					$122,249	$2,995,473	$542,231		**$3,659,954**
2	Tier 1 Use	$931,817	$1,237,395	$0	$0				$0	**$2,169,212**
3	Tier 2 Use	$363,409	$482,584	$0	$0				$44,853	**$890,846**
4	Tier 3 Use	$1,034,317	$1,373,508	$0	$0				$127,659	**$2,535,485**
5	**Total**	**$2,329,543**	**$3,093,487**	**$0**	**$0**	**$122,249**	**$2,995,473**	**$542,231**	**$172,513**	**$9,255,497**

4.4. Proposed Water Rates

4.4.1. Proposed Rate Structure Modification

Raftelis worked closely with City staff, the RSAC, and the City Council to evaluate potential changes to the existing water rate structure. All proposed water rates presented in subsequent sections incorporate the following RSAC recommended revisions to the existing water rate structure.

- **Update Variable Rate Tiers and Tier Allotments:** The proposed rate structure recommendation is for a single three-tier water use rate structure, applicable to all customer classes. The proposed three-tier structure is defined by water source of supply from low cost to high cost water. The allotment in each tier represents the average available volume of water, per connection (or residential dwelling unit where master-metered), in normal supply conditions. The sources in order of tiers are:
  - **Tier 1: Bell Canyon Surface Water**
  - **Tier 2: Stonebridge Wells Groundwater**
  - **Tier 3: Purchased Water from the City of Napa**

  The current rate structure is a uniform water use rate structure, applicable to all customer classes, which varies by season. Current and proposed bi-monthly tier allotments are shown below in **Table 4-41**. The current bi-monthly structure reflects the City's existing seasonal, uniform rate structure, which has been in effect since 2017 (2016 Rate Study).

Table 4-41: Proposed Changes to Water Rate Structure

Line	A Customer Class	B Current Structure	C Proposed Structure
1	Commodity Rates ($/HCF)		
2	Tier 1	Off-Peak (Nov-Apr)	0-11 HCF
3	Tier 2	Peak (May-Oct)	12-15 HCF
4	Tier 3		16+ HCF

4.4.2. Water Service Charges (Test Year FY 2023-24)

Table 4-42 and **Table 4-43** show the detailed calculation of Water Service Charges for the test year based on Customer and Meters unit charges. Customer costs do not vary by meter size. Therefore, the Customer unit rate is applied uniformly to all Water Service Charges (Column F). Because Meters costs vary by meter size based on hydraulic capacity, AWWA capacity ratios in Column C (from **Table 4-37**, Column B) are used to differentiate Meters unit charges by meter size. The Meters charges (Column E) are calculated by multiplying the Meters unit charge (from **Table 4-38**) by the AWWA capacity ratio (Column C). COS bi-monthly Water Service Charges (Column G) equal the sum of Columns E-F and are compared to current FY 2023 charges in Columns H-J. Calculations are made as monthly, but scheduled rates and charges to customers are bi-monthly and will see bi-monthly charges on their bill and the City's rate schedule.

Table 4-42: Water Service Charge Calculation (Test Year FY 2024)

Line	A Meter Size	B Number of Accounts	C AWWA Ratio	D Eq Meter	E Meters	F Customer	G Proposed Rates (Monthly)	H Current Rates (Monthly)	I Difference ($)	J Difference (%)
1	5/8"	2,020	1.00	2,020	$51.07	$16.68	$67.75	$69.89	-$2.14	-3.1%
2	3/4"	35	1.00	35	$51.07	$16.68	$67.75	$69.89	-$2.14	-3.1%
3	SFR 1"	263	1.00	263	$51.07	$16.68	$67.75	$69.89	-$2.14	-3.1%
4	1"	124	2.50	310	$127.67	$16.68	$144.35	$128.22	$16.13	12.6%
5	1 1/2"	71	5.00	353	$255.34	$16.68	$272.02	$225.64	$46.38	20.6%
6	2"	63	8.00	506	$408.55	$16.68	$425.23	$324.00	$101.23	31.2%
7	3"	8	17.50	141	$893.70	$16.68	$910.38	$654.72	$255.66	39.0%
8	4"	11	31.50	347	$1,608.66	$16.68	$1,625.34	$1,011.98	$613.36	60.6%
9	6"	13	70.00	913	$3,574.80	$16.68	$3,591.47	$1,981.63	$1,609.84	81.2%
10	**Total**	**2,608**		**4,888**	**$2,995,473**	**$522,017**	**$3,517,491**	**$3,079,254**		

Table 4-43: Bi-Monthly Water Service Charges (Test Year FY 2024)

A Meter Size	B Number of Accounts	C Proposed Rates (Bi-Monthly)	D Current Rates (Bi-Monthly)	E Difference ($)	F Difference (%)
5/8"	2,020	$135.50	$139.78	-$4.28	-3.1%
3/4"	35	$135.50	$139.78	-$4.29	-3.1%
SFR 1"	263	$135.50	$139.78	-$4.29	-3.1%
1"	124	$288.70	$256.44	$32.26	12.6%
1 1/2"	71	$544.05	$451.28	$92.77	20.6%
2"	63	$850.46	$648.00	$202.46	31.2%
3"	8	$1,820.76	$1,309.44	$511.32	39.0%
4"	11	$3,250.68	$2,023.96	$1,226.72	60.6%
6"	13	$7,182.95	$3,963.26	$3,219.69	81.2%

4.4.3. Fire Line Service Charges (Test Year FY 2024)

Fire Service Charges are designed to recover costs associated with the Customer and Fire Protection cost causation components. **Table 4-44** and **Table 4-45** show the calculation of unit charges for the Customer and Fire Protection. Customer unit charges were previously calculated in **Table 4-42** but are shown again below. Fire Protection unit charges are calculated per fire demand equivalent (from **Table 4-30**). Fire demand equivalents are used to allocate Fire Protection costs by connection size because larger connections are more expensive to install, maintain, and replace than smaller fire lines, and have greater potential capacity on the water system. Calculations are made as monthly, but scheduled rates and charges to customers are bi-monthly and will see bi-monthly charges on their bill and the City's rate schedule.

Table 4-44: Fire Line Service Charge Unit Charge Calculation (Test Year FY 2024)

Line	A Fireline Size	B Connection Count	C Equivalent Potential Demands	D Eq Meter	E Fire	F Customer	G Proposed Rates (Monthly)	H Current Rates (Monthly)	I Difference ($)	J Difference (%)
1	4"	57	44.02	2,509	$41.71	$16.68	$58.39	$13.33	$45.06	338.0%
2	6"	29	133.15	3,861	$126.17	$16.68	$142.85	$38.73	$104.12	268.8%
3	8"	15	292.04	4,381	$276.73	$16.68	$293.41	$82.53	$210.88	255.5%
4	**Total**	**101**		**10,751**	**$122,249**	**$20,214**	**$142,463**	**$37,451**		

Table 4-45: Fire Line Service Charge Unit Charge Calculation (Test Year FY 2024)

A Fireline Size	B Connection Count	C Proposed Rates (Bi-Monthly)	D Current Rates (Bi-Monthly)	E Difference ($)	F Difference (%)
4"	57	$116.78	$26.66	$90.12	338.0%
6"	29	$285.71	$77.46	$208.25	268.8%
8"	15	$586.82	$165.06	$421.76	255.5%

4.4.4. Water Volume Rates (Test Year FY 2023-24)

Water Volume Rates are designed to recover the portion of the rate revenue requirement allocated to the following cost causation components: Water Supply, Base Delivery, and Conservation. However, the costs associated with each cost causation component listed above are not uniformly applied to each customer class. Customer classes are only subject to each unit cost if the service they receive contributes to the Water Enterprise incurring costs associated with that specific cost causation component.

Water Supply Unit Rate

Water supply unit rates are applied to all tiers. **Table 4-46** shows the preliminary calculation of Water Supply unit rates by tier. The revenue requirement associated with the Water Supply cost causation component (from **Table 4-35**, Column F, Line 1) is allocated into each tier based on the costs incurred for each source of supply that makes up each tier. Tier 1 is sourced from Bell Canyon Surface Water, Tier 2 is sourced from Stonebridge Wells Groundwater, and Tier 3 is sourced from City of Napa water purchased through a long-term contract. The supply costs are shown in Column C, Lines 1-3. The average normal year supply volumes, in HCF, are shown in Column D. The supply costs for each tier are then divided by the volumes in each tier to obtain the supply unit cost for each tier in Column E.

Table 4-46: Water Supply Unit Rate

Line	A Supply	B Tier	C Supply Costs ($)	D Usage (HCF)	E Supply Unit Cost
1	Surface Water	Tier 1	$102,136	223,678	$0.46
2	Groundwater	Tier 2	$523,771	87,235	$6.00
3	Napa	Tier 3	$1,703,636	248,283	$6.86
4	**Total**		**$2,329,543**	**559,196**	**$4.17**

Conservation Unit Rate

Conservation unit rates are applied to Tier 2 and Tier 3. Conservation efforts are generally aimed at promoting water use efficiency, curtailing discretionary outdoor water use, and otherwise reducing overall system demands. Tier 1 water predominantly represents indoor use for both residential and non-residential connections. Tier 2 and Tier 3 water use represents outdoor irrigation for residential connections as well as higher volume non-residential users. Every unit of water saved through conservation efforts reduces pressure on the City's lowest cost source of supply (Surface Water) and allows the City to better manage the groundwater basin. Based on these considerations and in discussion with the RSAC, conservation costs are omitted from Tier 1. **Table 4-47** details the allocation of conservation costs to each tier.

Table 4-47: Conservation Unit Rate

Line	A Supply	B Tier	C Supply Costs ($)	D Usage (HCF)	E Supply Unit Cost
1	Surface Water	Tier 1	$0	0	$0.00
2	Groundwater	Tier 2	$44,853	87,235	$0.51
3	Napa	Tier 3	$127,659	248,283	$0.51
4	**Total**		**$172,513**	**335,517**	**$0.51**

4.4.4.1. Water Volume Rate Calculation (Test Year FY 2020-21)

Table 4-48 shows the calculation of Water Volume Rates for the test year. The proposed rate is calculated by summing the following unit rates (Columns B-E):

- Water Supply Unit Rates (from **Table 4-46**)
- Base Delivery Unit Rates (from **Table 4-38**)
- Conservation Unit Rates (from **Table 4-47**)

Table 4-48: Water Volume Rates Calculation (Test Year FY 2023-24)

Line	A Volumetric Charges	B Supply	C Base	D Conservation	E Proposed Charge ($/HCF)
1	**Bi-Monthly Tiers All Classes**				
2	Tier 1	$0.46	$5.53	$0.00	$5.99
3	Tier 2	$6.00	$5.53	$0.51	$12.05
4	Tier 3	$6.86	$5.53	$0.51	$12.91

The Proposed Five-Year Water Rate Schedule in **Table 4-49** shows rates for FY 2024 through FY 2028. Proposed FY 2025 water rates were calculated by increasing COS Water Service Charges (from **Table 4-42**), Fire Line Service Charges (from **Table 4-44**), and Water Volume Rates (from **Table 4-48**) by the proposed FY 2025 revenue adjustment (from **Table 4-19**). All proposed rates in subsequent years are then increased each year based on the schedule of proposed revenue adjustments (from **Table 4-19**). All proposed rates are rounded up to the nearest cent to ensure adequate revenue recovery. Current FY 2023 water rates (from **Table 4-1**) are also shown. Current and proposed fixed charges are bi-monthly. Proposed rates reflect non-shortage / new baseline supply and demand conditions (i.e., no declared water shortage phase).

Table 4-49: Proposed Five-Year Water Rate Schedule

Line	A Description	B Current Charges	C Proposed FY 2024	D Proposed FY 2025	E Proposed FY 2026	F Proposed FY 2027	G Proposed FY 2028
1	**Bi-Monthly Fixed Charges**						
2	Meter Size						
3	5/8"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
4	3/4"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
5	SFR 1"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
6	1"	$256.44	$288.70	$311.80	$336.75	$363.69	$392.79
7	1 1/2"	$451.28	$544.05	$587.58	$634.59	$685.36	$740.19
8	2"	$648.00	$850.46	$918.50	$991.98	$1,071.34	$1,157.05
9	3"	$1,309.44	$1,820.76	$1,966.43	$2,123.75	$2,293.65	$2,477.15
10	4"	$2,023.96	$3,250.68	$3,510.74	$3,791.60	$4,094.93	$4,422.53
11	6"	$3,963.26	$7,182.95	$7,757.59	$8,378.20	$9,048.46	$9,772.34
12							
13	Fireline Size						
14	4"	$26.66	$116.78	$126.13	$136.23	$147.13	$158.91
15	6"	$77.46	$285.71	$308.57	$333.26	$359.93	$388.73
16	8"	$165.06	$586.82	$633.77	$684.48	$739.24	$798.38
17							
18	**Volumetric Charges**						
19	All Classes						
20	Tier 1	$6.50	$5.99	$6.47	$6.99	$7.55	$8.16
21	Tier 2	$7.23	$12.06	$13.03	$14.08	$15.21	$16.43
22	Tier 3		$12.91	$13.95	$15.07	$16.28	$17.59

4.5. Proposed Water Shortage Surcharges

4.5.1. Calculation of Proposed Water Shortage Surcharges

This subsection shows detailed calculations of proposed Water Shortage Surcharges through FY 2028. All proposed surcharges are first calculated for FY 2024 (i.e., the "test year") to maintain consistency with the water COS analysis.

Water shortage rates are designed to recover net revenue shortfalls during periods of reduced water sales due to mandatory water conservation. The first step in the development of Water Shortage Surcharges is to estimate reductions in water use at each water shortage stage. **Table 4-50** shows projected reductions in FY 2024 water use by customer class and tier. Reductions were estimated in consultation with City staff relying on a mix of prior study assumptions, actual reductions during recent shortage conditions, and professional judgment. All reductions shown are relative to "base" (non-shortage) water use projections (from **Table 4-6**).

Table 4-50: Projected Water Use Reduction by Water Shortage Stage (FY 2023-24)

Line	A Water Reduction	B Baseline	C Phase I	D Phase II	E Phase III
1	Targeted System Demand Reduction Goal	N/A	10%	30%	40%
2					
3	**Customer Class**				
4	Residential	N/A	10%	30%	45%
5	Commercial	N/A	10%	20%	30%
6	Industrial	N/A	10%	20%	30%
7	Landscape	N/A	10%	40%	63%
8					
9	**Customer Class**				
10	Residential	297,704	267,934	208,393	163,737
11	Commercial	132,276	119,049	105,821	92,594
12	Industrial	116,963	105,267	93,571	81,874
13	Landscape	12,252	11,026	7,351	4,594
14	**Total (HCF)**	**559,196**	**503,276**	**415,136**	**342,800**

Table 4-51 shows the detailed calculation of Water Shortage Surcharges as a percent of base Water Volume Rates. The net revenue loss to be recovered by Water Shortage Surcharges is based on total rate revenue loss. As water sales decrease with each subsequent phase, revenues from Water Volume Rates also decline. Raftelis projected annualized Water Volume Rate revenues in FY 2024 under each stage based on proposed FY 2024 Water Volume Rates (from **Table 4-48**) and projected water demand by customer class and shortage phase (from **Table 4-50**). The total net revenue loss represents the additional revenue required from Water Shortage Surcharges at each stage. Dividing the net revenue loss by annualized Water Volume Rate revenue under "base rates" results in the proposed FY 2024 Water Shortage Surcharges (as a percent of base rates).

Table 4-51: Calculation of Water Shortage Surcharges (Test Year FY 2023-24)

Line	A Drought Costs	B Baseline	C Phase I	D Phase II	E Phase III
1	Reduced Commodity Revenue	$0	$721,922	$1,859,814	$2,793,675
2					
3	Drought Revenues (from Base Rates)	$5,597,214	$4,875,293	$3,737,401	$2,803,540
4	% Additional Revenue Required	0%	15%	50%	100%

Table 4-52 shows the calculation of Water Shortage Surcharges per HCF at each stage for the test year (FY 2024). Surcharges per HCF are equal to the COS Water Volume Rates (from **Table 4-48**) increased by the corresponding surcharge percentages at each stage (from **Table 4-51**). This approach ensures that surcharges by tier and shortage phase are proportional to the cost of service analysis and function as an extension to the COS rates. In this way the results of the cost of service are maintained through shortage conditions and over the five-year rate-setting period.

Table 4-52: Calculated Water Shortage Phase Rates per HCF (Test Year FY 2024)

Line	A Proposed Total Rate	B Baseline	C Phase I	D Phase II	E Phase III
1	All Classes				
2	Tier 1	$5.99	$6.88	$8.98	$11.96
3	Tier 2	$12.06	$13.85	$18.07	$24.08
4	Tier 3	$12.91	$14.83	$19.34	$25.78

Line	A Proposed Shortage Surcharge	B Baseline	C Phase I	D Phase II	E Phase III
1	All Classes				
2	Tier 1	$0.89	$2.99	$5.97	$0.89
3	Tier 2	$1.79	$6.01	$12.02	$1.79
4	Tier 3	$1.92	$6.43	$12.87	$1.92

Table 4-53 shows the proposed five-year schedule of Water Shortage Surcharges for FY 2024 through FY 2028. All proposed surcharges in subsequent years are increased based on the schedule of proposed revenue adjustments (from **Table 4-19**). All proposed surcharges are rounded up to the nearest cent to ensure adequate revenue recovery.

Table 4-53: Proposed Five-Year Schedule of Water Shortage Surcharges

Line	A Fiscal Year and Tier	B Phase I	C Phase II	D Phase III
1	FY 2024			
2	Tier 1	$0.89	$2.99	$5.97
3	Tier 2	$1.79	$6.01	$12.02
4	Tier 3	$1.92	$6.43	$12.87
5				
6	FY 2025			
7	Tier 1	$0.97	$3.23	$6.45
8	Tier 2	$1.94	$6.50	$12.99
9	Tier 3	$2.08	$6.95	$13.90
10				
11	FY 2026			
12	Tier 1	$1.05	$3.49	$6.97
13	Tier 2	$2.10	$7.02	$14.03
14	Tier 3	$2.25	$7.51	$15.02
15				
16	FY 2027			
17	Tier 1	$1.14	$3.77	$7.53
18	Tier 2	$2.27	$7.59	$15.16
19	Tier 3	$2.43	$8.12	$16.23
20				
21	FY 2028			
22	Tier 1	$1.24	$4.08	$8.14

23	Tier 2	$2.46	$8.20	$16.38
24	Tier 3	$2.63	$8.77	$17.53

5. Wastewater Rate Study

5.1. Key Inputs and Assumptions

Raftelis developed a wastewater rate model in Microsoft Excel to project financial calculations over the next ten fiscal years with projections shown in this section through the five-year rate-setting period of FY 2027-28 (i.e., the "study period"). The City's fiscal year spans from July 1 through June 30. Projections in future years were generally made based on actual or estimated FY 2021-22 and/or budgeted data for FY 2022-23 data using key assumptions outlined below. Assumptions were discussed with and reviewed by City Staff to ensure that the City wastewater system's unique characteristics are accurately accounted for. Note that most table values shown throughout this report are rounded to the last digit shown and may therefore not sum precisely to the totals shown.

5.1.1. Current Wastewater Rates

Table 5-1 shows the wastewater rates currently in effect in FY 2020-21, which were developed during the prior rate study in 2016. Rates and charges vary by customer class. The City's wastewater rate structure consists of Fixed Service Charges and Variable Flow Charges for all customer classes. Residential customers are charged a base rate (Fixed Service Charge) and a volumetric rate (Variable Flow Charge) based on AWC. Commercial customers are charged a Fixed Service Charge based on the size of the meter serving the connection and Variable Flow Charges based on billed water use. Multi-Family Residential (MFR) customers which include Multi-Dwelling apartments, condos, and mobile home parks, are charged base rates as commercial customers (by meter size) and volumetric flow rates as residential customers (AWC).

Table 5-1: Current Wastewater Rate Schedule

Line	A Description	B Bi-Monthly Rates
1	**Residential**	
2	Base Charge	$127.35
3	Use Charge	$5.58
4		
5	**Non-Residential**	
6	Base Charge	
7	5/8"	$176.68
8	1"	$441.72
9	1.5"	$883.42
10	2"	$1,413.48
11	3"	$2,826.98
12	4"	$4,417.14
13	6"	$8,834.28
14		
15	Use Charge	
16	Car Wash	$3.86
17	Religious Places/Community Centers	$4.29
18	Commercial	$5.07
19	Groceries and Mortuaries	$13.62
20	Laundry	$4.42
21	Mixed Retail	$8.52
22	Lodging with Food	$10.22
23	Lodging without Food	$5.54
24	Restaurant	$13.50
25	Napa Valley College	$4.22
26	Service Station	$5.83
27	Winery Pre-Treated	$5.39
28	Winery Non-Treated	$23.75
29	Schools	$2.10

5.1.2. Wastewater Enterprise Financial Assumptions

Inflationary assumptions shown in **Table 5-2** are used to escalate projected non-rate revenues and operations and maintenance (O&M) expenses beyond FY 2022-23. For O&M expenses, the general inflation rate is consistent with long-term changes in the Consumer Price Index (CPI), with an expectation that inflation remains elevated through FY 2026. Similarly, capital inflation is based on the long-term average of the Engineering News-Record's (ENR) Construction Cost Index (CCI). The capital inflation factor is used to adjust uninflated capital project cost estimates provided to Raftelis by City staff. Salary and benefit inflationary increases were provided by City staff, as wastewater utility personnel cost increases are typically agency-specific. All other O&M expense inflationary assumptions were developed by Raftelis based on professional judgment, experience with similar agencies, and after discussions with City staff and the RSAC.

Table 5-2: Wastewater Inflationary Assumptions

Line	A Inflation Factors	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	**Revenue Inflation**					
2	Miscellaneous Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
3	Reserve Interest Rate	1.0%	1.0%	1.0%	1.0%	1.0%
4						
5	**Expense Inflation**					
6	General	5.0%	4.2%	3.5%	2.8%	2.8%
7	Salary	4.0%	4.0%	4.0%	4.0%	4.0%
8	Benefits	6.0%	6.0%	6.0%	6.0%	6.0%
9	Supplies	5.0%	4.2%	3.5%	2.8%	2.8%
10	Utilities	5.0%	5.0%	5.0%	5.0%	5.0%
11	Capital	5.0%	4.4%	3.8%	3.2%	3.2%

5.1.3. Projected Wastewater Billing Units of Service

Wastewater connection growth projections are necessary to estimate wastewater rate revenues over the study period. Raftelis relied on information within the City's General Plan and projected housing units over the long-term. An assumption of 10 SFR units and 8 MFR dwelling units per year is translated into percentages relative to the existing connection base. The base units are the number of billing units, by customer class, in FY 2022. Raftelis then applied annual account growth rates to all billing units to develop projections over the study, shown in **Table 5-3**. Additional wastewater generation factors were applied to billed wastewater and are shown in **Table 5-4**.

Table 5-5 shows the current FY 2021-22 wastewater billing units of service and projected wastewater billing units of service for the rate study period. All billing units shown below are based on the current wastewater rate structure.

Table 5-3: Projected Wastewater Connection Growth

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Single Family	0.48%	0.48%	0.48%	0.48%	0.48%	0.48%
2	Multi Family	0.85%	0.85%	0.85%	0.85%	0.85%	0.85%
3	Commercial	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Institutional	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 5-4: Projected Wastewater Demand Factors

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Single Family	0.48%	0.48%	0.00%	0.00%	0.00%	0.00%
2	Multi Family	0.85%	0.85%	0.00%	0.00%	0.00%	0.00%
3	Commercial	7.50%	7.50%	0.00%	0.00%	0.00%	0.00%
4	Institutional	7.50%	7.50%	0.00%	0.00%	0.00%	0.00%

Table 5-5: Projected Wastewater Billing Units Under Existing Rate Structure

Line	A Description	B FY 2022	C FY 2023	D FY 2024	E FY 2025	F FY 2026	G FY 2027	H FY 2028
1	Residential - Dwelling Units							
2	Single Family	1,526	1,533	1,541	1,548	1,555	1,563	1,570
3	Multi Family	673	679	685	690	696	702	708
4	Mobile Home	212	214	216	217	219	221	223
5								
6	Residential - Accounts							
7	Single Family	1,506	1,513	1,520	1,528	1,535	1,542	1,550
8	Multi Family	100	101	102	103	103	104	105
9	Mobile Home	2	2	2	2	2	2	2
10								
11	Non-Residential Meter Size							
12	5/8"	117	117	117	117	117	117	117
13	1"	43	43	43	43	43	43	43
14	1.5"	20	20	20	20	20	20	20
15	2"	20	20	20	20	20	20	20
16	3"	2	2	2	2	2	2	2
17	4"	4	4	4	4	4	4	4
18	6"	1	1	1	1	1	1	1
19	Total Non-Residential Meters	207	207	207	207	207	207	207
20								
21	**Customer Usage**							
22	Residential (Annual Winter Average)							
23	Single Family	77,832	78,203	78,576	78,950	79,326	79,704	80,084
24	Multi Unit	29,124	29,373	29,623	29,876	30,131	30,388	30,648
25	Mobile Home	13,164	13,276	13,390	13,504	13,619	13,735	13,853
26								
27	Non-Residential	61,136	65,605	70,408	70,408	70,408	70,408	70,408
28	Car Wash	504	542	582	582	582	582	582
29	Religious Places/Community Centers	1,535	1,650	1,774	1,774	1,774	1,774	1,774
30	Commercial	16,333	17,558	18,875	18,875	18,875	18,875	18,875
31	Groceries and Mortuaries	990	1,064	1,144	1,144	1,144	1,144	1,144
32	Laundry	4,066	4,371	4,699	4,699	4,699	4,699	4,699
33	Mixed Retail	2,075	2,231	2,398	2,398	2,398	2,398	2,398
34	Lodging with Food	10,437	11,220	12,061	12,061	12,061	12,061	12,061
35	Lodging without Food	7,668	8,243	8,861	8,861	8,861	8,861	8,861
36	Restaurant	7,518	8,082	8,688	8,688	8,688	8,688	8,688
37	Napa Valley College	510	548	589	589	589	589	589
38	Service Station	511	549	591	591	591	591	591
39	Winery Pre-Treated	1,555	1,555	1,555	1,555	1,555	1,555	1,555
40	Winery Non-Treated	929	999	1,074	1,074	1,074	1,074	1,074
41	Schools	6,505	6,993	7,517	7,517	7,517	7,517	7,517
42								
43	**Total - Usage (HCF)**	**242,392**	**252,061**	**262,406**	**263,147**	**263,894**	**264,645**	**265,402**

5.2. Wastewater Financial Plan

This section details the development of the proposed Wastewater financial plan over the study period. The following subsections include estimates and projections of annual revenues, O&M expenses, debt service payments, capital expenditures, and reserve funding through FY 2032. For formatting purposes, most tables in this section are shown through FY 2028, the end of the five-year rate setting period. The overall purpose of the financial plan is to determine annual wastewater rate revenues required to achieve sufficient cash flow, maintain adequate reserves, and meet debt coverage requirements in every year of the plan.

5.2.1. Wastewater Enterprise Revenue under Current Rates

The Wastewater utility's revenue sources consist of wastewater rates, interest earnings on cash reserves, and other non-rate revenues. The rate revenue projections shown in this section assume that current FY 2021-22 wastewater rates are effective throughout the study period, and therefore represent estimated revenues in the absence of any wastewater rate increases. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments (i.e., gross rate revenue increases).

Calculated Wastewater Rate Revenues

Raftelis projects annual wastewater rate revenues over the study period based on current FY 2022 wastewater rates (from **Table 5-1**) and projected number of billing units (from **Table 5-5**). **Table 5-6** shows projected wastewater rate revenues under current rates over the study period, calculated as follows:

Fixed Charge Revenue = [Respective FY 2022 bi-monthly charge] ×
[Number of dwelling units or metered connections] ×
[6 Bills per year]

Variable Rate Revenue = [Respective FY 2022 unit rate] × [Number of billing units]

Table 5-6: Projected Rate Revenues under Current Wastewater Rates

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Bi-Monthly Service Charge						
2	Single Family	$1,156,219	$1,161,729	$1,167,266	$1,172,829	$1,178,419	$1,184,035
3	Multi-Unit	$399,866	$403,279	$406,721	$410,193	$413,694	$417,225
4	Mobile Home	$62,011	$62,541	$63,074	$63,613	$64,156	$64,703
5	Non-Residential	$706,562	$706,562	$706,562	$706,562	$706,562	$706,562
6							
7	Flow Rates ($/HCF)						
8	Single Family	$436,372	$438,452	$440,542	$442,641	$444,751	$446,871
9	Multi-Unit	$163,899	$165,298	$166,709	$168,132	$169,567	$171,014
10	Mobile Home	$74,082	$74,714	$75,352	$75,995	$76,644	$77,298
11	Car Wash	$2,091	$2,248	$2,248	$2,248	$2,248	$2,248
12	Religious Places/Community Centers	$7,079	$7,610	$7,610	$7,610	$7,610	$7,610
13	Commercial	$89,019	$95,695	$95,695	$95,695	$95,695	$95,695
14	Groceries and Mortuaries	$14,495	$15,582	$15,582	$15,582	$15,582	$15,582
15	Laundry	$19,320	$20,769	$20,769	$20,769	$20,769	$20,769
16	Mixed Retail	$19,005	$20,430	$20,430	$20,430	$20,430	$20,430
17	Lodging with Food	$114,666	$123,266	$123,266	$123,266	$123,266	$123,266
18	Lodging without Food	$45,667	$49,092	$49,092	$49,092	$49,092	$49,092
19	Restaurant	$109,105	$117,288	$117,288	$117,288	$117,288	$117,288
20	Napa Valley College	$2,314	$2,487	$2,487	$2,487	$2,487	$2,487
21	Service Station	$3,203	$3,443	$3,443	$3,443	$3,443	$3,443
22	Winery Pre-Treated	$8,383	$8,383	$8,383	$8,383	$8,383	$8,383
23	Winery Non-Treated	$23,719	$25,497	$25,497	$25,497	$25,497	$25,497
24	Schools	$14,685	$15,786	$15,786	$15,786	$15,786	$15,786
25							
26	**Total - Calculated Rate Revenues**	**$3,471,761**	**$3,520,152**	**$3,533,803**	**$3,547,542**	**$3,561,369**	**$3,575,285**

5.2.1.1. Other Wastewater Enterprise Revenues

Table 5-7 shows all other Wastewater revenues. All FY 2023 other revenues are based on the City's FY 2023 budget and are escalated annually by the miscellaneous inflation rate (from **Table 5-2**). Interest revenue is estimated in the financial plan model beginning in FY 2024 based on projected fund balances and the assumed interest rate (from **Table 5-2**).

Table 5-7: Other Wastewater Revenues

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Other Operating Revenue	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
2	Investment Income	$20,000	$38,798	$46,107	$34,477	$35,916	$37,354
3	**Total Non-Rate Revenue**	**$22,900**	**$41,698**	**$49,007**	**$37,377**	**$38,816**	**$40,254**

Summary of Projected Wastewater Enterprise Revenues

Table 5-8 shows a summary of all projected Wastewater Enterprise revenues under current rates over the study period. This includes all projected revenues shown in **Table 5-6** and **Table 5-7**. This revenue summary represents expected revenues in the absence of any rate increase over the study period.

Table 5-8: Summary of Projected Wastewater Revenues Under Current Rates

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Operating Revenues						
2	Sewer Service Charges	$3,471,761	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285
3	Other Operating Revenue	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
4							
5	Non-Operating Revenues						
6	Investment Income	$20,000	$38,798	$46,107	$34,477	$35,916	$37,354
7							
8	**Total - Revenues**	**$3,494,661**	**$3,561,851**	**$3,582,810**	**$3,584,919**	**$3,600,184**	**$3,615,539**

5.2.2. Wastewater Operations & Maintenance Expenses

Table 5-9 shows a summary of all Wastewater O&M expenses over the rate-setting period. O&M expenditures include the cost of operating and maintaining wastewater collection, treatment, and disposal facilities. O&M expenses also include the costs of providing technical services such as laboratory services and other administrative costs of the wastewater system. These costs are a normal obligation of the system and are met from operating revenues as they are incurred. FY 2023 reflects budgeted O&M expenses, as well as temporary/one-time expenses provided by City staff in current dollars. Future years are adjusted for inflation by Raftelis (based on inflationary assumptions shown in **Table 5-2**).

Table 5-9: Projected Wastewater O&M Expenses

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Operating Expenses						
2	Non Departmental	$238,642	$252,168	$266,473	$281,605	$297,609	$314,538
3	Council	$21,927	$23,171	$24,486	$25,878	$27,350	$28,906
4	Administration	$202,115	$211,490	$221,238	$231,383	$241,939	$252,999
5	Finance	$456,929	$479,078	$501,009	$522,774	$544,288	$566,767
6	Attorney	$26,500	$27,825	$28,994	$30,008	$30,849	$31,712
7	Public Works	$2,182,403	$2,602,358	$2,721,791	$2,839,702	$2,955,546	$3,076,537
8	Temp/Part Time	$730,000	$600,000	$0	$0	$0	$0
9	**Total Expenses**	**$3,858,516**	**$4,196,090**	**$3,763,992**	**$3,931,349**	**$4,097,580**	**$4,271,460**

5.2.3. Wastewater Debt

Table 5-10 shows the Wastewater Enterprise's projected debt service obligations over the study period. Existing debt service consists of the City's 2005B Installment Agreement and the 2012B Installment Agreement for Wastewater.

2005B Installment Agreement - In July 2005, the City entered into a $2.2 million installment purchase agreement with the California Statewide Communities Development Authority for the purpose of obtaining funds to make wastewater systems improvements. The agreement bears interest at rates of 2.50% to 4.375% per annum and is payable October 1 and April 1 commencing October 1, 2005, and continuing until April 1, 2031.

2012B Installment Agreement - In June 2012, The City entered into a $7.16 million installment purchase agreement with the California Statewide Communities Development Authority for the purpose of obtaining funds to make water and wastewater improvements. The 2012B installment agreement bears interest rates of 2.0% to 5.0% per annum and is payable October 1 and April 1 commencing October 1, 2013, and continuing until October 31, 2032. The City, under the arrangement, allocated $1.56 million to its wastewater enterprise.

Proposed Wastewater debt service includes Raftelis' estimated annual repayment of the City's USDA Loan (not formally structured at the time of this study) and an assumed $3M revenue bond borrowing in FY 2024. Note that proposed debt service represents preliminary projections for planning purposes based on the proposed financial plan and best information available at the time of this study. The timing, magnitude, or financing assumptions are for planning purposes only and should not be construed as municipal advice.

Table 5-10: Wastewater Debt Service

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Existing Debt Service						
2	2005B Installment Agreement	$138,014	$138,821	$139,414	$139,750	$139,828	$139,687
3	2012B Installment Agreement - Wastewater	$114,033	$113,989	$113,881	$114,598	$113,783	$113,891
4							
5	Proposed Debt Service						
6	Proposed Bond	$0	$175,243	$175,243	$175,243	$175,243	$175,243
7	Proposed USDA Loan	$342,235	$342,235	$342,235	$342,235	$342,235	$342,235
8							
9	**Total Debt Service**	**$594,282**	**$770,288**	**$770,773**	**$771,826**	**$771,089**	**$771,056**

5.2.4. Wastewater Enterprise Capital Improvement Plan

Table 5-11 shows the City's planned capital improvement plan (CIP) for the Wastewater enterprise. All values account for assumed CCI. While the gross (total) CIP is shown it should be noted that the WWTP Phase 1 Upgrades project is mostly funded with USDA loan proceeds and four other projects (lines 4-7) are funded with GO Bond proceeds allocated to the Wastewater utility. All other projects are assumed to be funded with rate revenues through either cash or future revenue bond proceeds.

Table 5-11: Wastewater Capital Improvement Plan

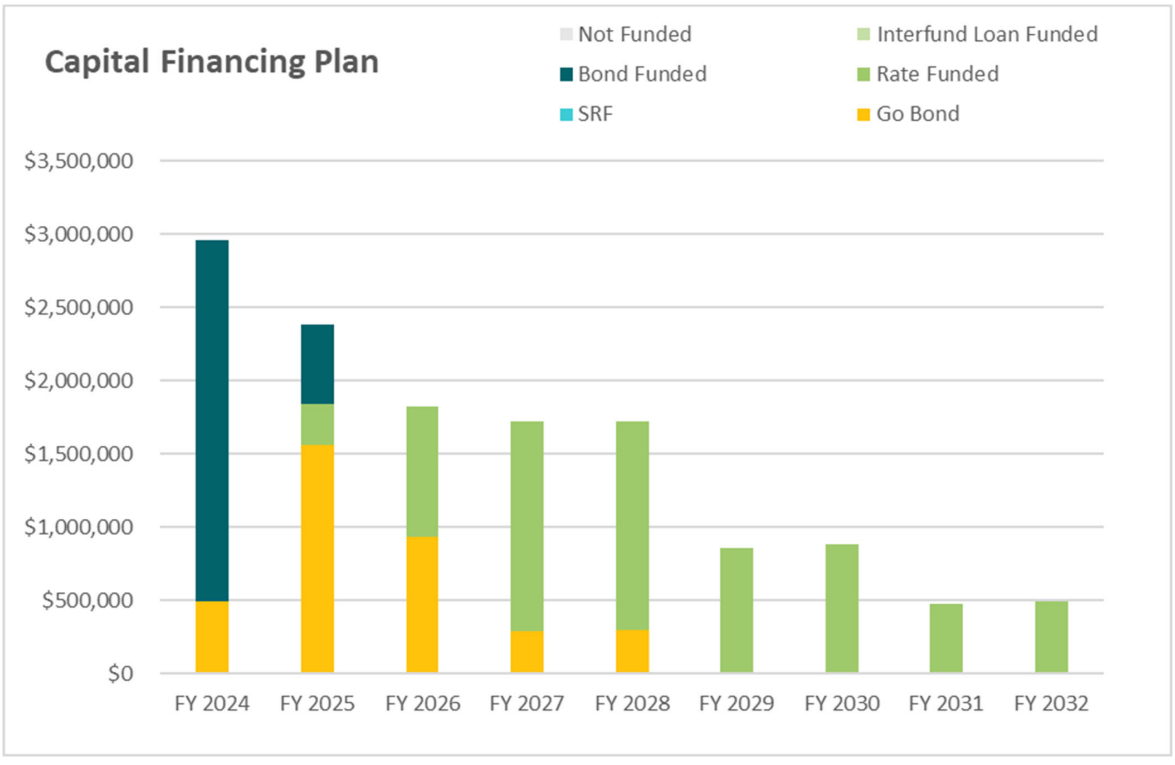
Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	S-52 WWTP Phase I Upgrades	$5,699,800	$1,407,210	$0	$0	$0	$0
2	S23-01 Recycled Water - Deliver Recycled Water to Crane Park's Irrigation (Design only)	$0	$52,500	$0	$0	$0	$0
3	WWTP Pond Cleaning, Decommissioning, and Repurpose	$0	$0	$0	$0	$587,133	$605,922
4	S18-70 Sewer Replacement Program	$0	$260,400	$271,858	$282,188	$291,218	$300,537
5	S18-71 Crinella Lift Station Improvements	$0	$0	$624,834	$648,578	$0	$0
6	WWGM-6 Del Campo Curt	$0	$0	$666,490	$0	$0	$0
7	WWRR-1CCTV Inspection Program, Phase 1	$0	$233,100	$0	$0	$0	$0
8	WWRR-2 Flow Monitoring Program	$0	$0	$65,772	$0	$0	$0
9	WWRR-3 High Priority Pipeline Replacement	$0	$703,080	$734,016	$761,908	$786,289	$811,450
10	WWRR-4 Model Update and System Analysis	$0	$0	$0	$56,893	$0	$0
11	WWRR-5 CCTV Inspection Phase 2	$0	$0	$0	$0	$0	$0
12	WWRR-6 Address R/R needs from Phase 1 CCTV Program Years 6-10 & 11-20	$0	$0	$0	$0	$0	$0
13	Asset Management Program Development	$0	$0	$0	$56,893	$0	$0
14	Asset Management Software Assessment & Optimization planning	$0	$0	$0	$17,068	$0	$0
15	CMMS Purchase & Setup	$0	$0	$0	$0	$58,713	$0
16	ArcGIS Purchase & Setup	$0	$36,750	$16,443	$0	$0	$0
17	S21-01 WWTP Recycled Pipeline and Pump Station (Design only)	$0	$262,500	$0	$0	$0	$0
18	**Total**	**$5,699,800**	**$2,955,540**	**$2,379,412**	**$1,823,527**	**$1,723,354**	**$1,717,909**

Table 5-12 shows the assumed funding sources for Wastewater CIP projects over the study period. Proposed debt proceeds are assumed to fund most of the Wastewater CIP projects through FY 2025-26. All remaining CIP not funded by debt is assumed to be funded by Wastewater cash reserves generated from rates (i.e., pay-as-you-go). **Figure 5-1** shows a summary of total Wastewater Enterprise CIP expenditures by funding source over the study period.

Table 5-12: Wastewater Capital Improvement Plan Proposed Funding

Line	A Description	B FY 2023	C FY 2024	D FY 2025	E FY 2026	F FY 2027	G FY 2028
1	Go Bond	$0	$493,500	$1,563,181	$930,766	$291,218	$300,537
2	Bond Funded	$0	$2,462,040	$537,960	$0	$0	$0
3	Rate Funded	$5,699,800	$0	$278,271	$892,762	$1,432,136	$1,417,372
4	**Total CIP**	**$5,699,800**	**$2,955,540**	**$2,379,412**	**$1,823,527**	**$1,723,354**	**$1,717,909**

Figure 5-1: Wastewater Capital Improvement Plan



Wastewater Enterprise Financial Policies

5.2.4.1. Required Debt Coverage

The Wastewater utility is required to meet debt service coverage requirements on its outstanding wastewater revenue bonds. The required debt coverage ratio is 1.20, meaning that the Wastewater utility's net operating revenues (i.e., total operating revenues less operating expenses) must amount to at least 1.20 times the amount of annual debt service. Failure to meet debt service coverage results in a technical default, which without foreseeable remedial action such as implementing rate increases, could result in a downgrade of credit rating, higher costs in future debt issuance, or even denial of credit.

5.2.4.2. Reserve Targets

Adequate cash reserves are required to meet operating, capital, and debt service requirements. Operating reserves provide funds to meet ongoing cash flow requirements related to operating expenses. The current reserve target is equal to 8 months of annual operating expenses (which includes both O&M and debt service), and the minimum reserve target is equal to 6 months of annual O&M expenses. **Table 5-13** shows projected reserve targets over the study period based on the policies outlined above. No changes are proposed to the City's existing wastewater reserve policies.

Table 5-13: Projected Wastewater Reserve Targets

	A	B	C	D	E	F	G
Line	Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	Reserve - 8 Months	$2,968,532	$3,310,918	$3,023,177	$3,135,450	$3,245,779	$3,361,677
2	Reserve – 6 Months	$2,226,399	$2,483,189	$2,267,383	$2,351,587	$2,434,334	$2,521,258

5.2.5. Status Quo Wastewater Financial Plan

To evaluate the need for revenue adjustments (i.e., increases to gross rate revenues), Raftelis first develops a status quo financial plan. The status quo financial plan assumes that current FY 2023 rates remain unchanged over the study period. **Table 5-14** combines projected Fund 571 revenues (from **Table 5-8**), O&M expenses (from **Table 5-9**), and debt service (from **Table 5-10**) to generate operating cash flow projections under the status quo. In the absence of any revenue adjustments, the Wastewater Operating Fund (Fund 571) will fail to generate sufficient revenue to recover O&M expenses and debt service, and net cash generation becomes increasingly negative in subsequent years.

Table 5-14: Wastewater Operating Cash Flow (Fund 571) – Status Quo Financial Plan

Line	A Description	B	C FY 2023	D FY 2024	E FY 2025	F FY 2026	G FY 2027	H FY 2028
1	Revenues							
2	Revenue from Existing Rates		$3,471,761	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285
3								
4	Revenue Adjustments	Adjustment						
5	FY 2023	0.0%	$0	$0	$0	$0	$0	$0
6	FY 2024	0.0%		$0	$0	$0	$0	$0
7	FY 2025	0.0%			$0	$0	$0	$0
8	FY 2026	0.0%				$0	$0	$0
9	FY 2027	0.0%					$0	$0
10	FY 2028	0.0%						$0
11	Revenue Adjustments		$0	$0	$0	$0	$0	$0
12	Total Revenues from Rates		$3,471,761	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285
13	Other Operating Revenue		$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
14	Investment Income		$20,000	$29,998	$28,247	$17,932	$6,683	$6,840
15	**Total - Revenues**		$3,494,661	$3,553,050	$3,564,950	$3,568,374	$3,570,952	$3,585,024
16								
17	Operating Expenses							
18	Operating Expenses		$3,128,516	$3,596,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460
19	Temp/Part Time (WWTP temp operators)		$730,000	$600,000	$0	$0	$0	$0
20	**Total Operating Expenses**		$3,858,516	$4,196,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460
21								
22	Net Revenue		($363,855)	($643,039)	($199,042)	($362,975)	($526,628)	($686,435)
23								
24	Existing Debt Service		$252,047	$252,810	$253,295	$254,348	$253,611	$253,578
25	Proposed Debt Service		$342,235	$517,478	$517,478	$517,478	$517,478	$517,478
26	**Annual Debt Service**		$594,282	$770,288	$770,773	$771,826	$771,089	$771,056
27								
28	Net Cash		($958,137)	($1,413,327)	($969,815)	($1,134,801)	($1,297,716)	($1,457,491)
29								
30	Debt Service Coverage							
31	Calculated Coverage		(0.61)	(0.83)	(0.26)	(0.47)	(0.68)	(0.89)
32	Target Coverage		1.20	1.20	1.20	1.20	1.20	1.20

Table 5-15 shows projected reserve balances and debt coverage under the status quo financial plan for the entire wastewater utility, including both the Wastewater Fund (Fund 571), Wastewater Capital Fund (Fund 773), and the Wastewater Impact Fund (774). Sources of funds include revenues (from **Table 5-8**) as well as debt proceeds. Use of funds include O&M expenses (from **Table 5-9**), debt service (from **Table 5-10**), and CIP expenditures (from **Table 5-11**). All ending balance and debt coverage figures are projected values. Target reserve balances shown are from **Table 5-13**.

Under the status-quo financial plan, reserves are projected to fall below the minimum target every year of the study period. Debt coverage is projected to fall well below the required ratio in all years. The status quo financial plan is insufficient to meet the Wastewater utility's financial needs over the study period. This demonstrates a clear need for revenue adjustments over the study period to increase rate revenues and ensure financial sustainability.

Table 5-15: Status Quo Water Financial Plan Pro Forma (Funds 561, 763, 764)

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	**Beginning Balances**	**$250,969**	**($146,736)**	**($1,379,199)**	**($3,391,140)**	**($6,105,370)**
2						
3	**Sources of Funds**					
4	Revenue from Existing Rates	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285
5	Total Revenue Adjustments	$0	$0	$0	$0	$0
6	Other Operating Revenue	$2,900	$2,900	$2,900	$2,900	$2,900
7	Investment Income	$29,998	$28,247	$17,932	$6,683	$6,840
8	WW Capital Revenues	$0	$0	$0	$0	$0
9	WW Impact Fee Revenues	$16,918	$16,918	$16,918	$16,918	$16,918
10	Bond Proceeds CIP Funding	$2,462,040	$537,960	$0	$0	$0
11	SRF Proceeds	$0	$0	$0	$0	$0
12	USDA Proceeds	$0	$0	$0	$0	$0
13	Go Bond Proceeds	$493,500	$1,563,181	$930,766	$291,218	$300,537
14	Interfund Proceeds	$0	$0	$0	$0	$0
15	General Fund Loan (+Funds/-Payment)	$1,000,000	$0	$0	$0	$0
16	**Total Source of Funds**	**$7,525,508**	**$5,683,010**	**$4,516,058**	**$3,879,088**	**$3,902,479**
17						
18	**Use of Funds**					
19	Operating Expenses	$3,596,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460
20	Temp/Part Time (WWTP temp operators)	$600,000	$0	$0	$0	$0
21	WW Impact Fund Expenses	$1,296	$1,296	$1,296	$1,296	$1,296
22	WW Capital Fund Expenses	$0	$0	$0	$0	$0
23	Unrestricted Capital Project Costs	$2,462,040	$816,231	$892,762	$1,432,136	$1,417,372
24	Existing DS	$252,810	$253,295	$254,348	$253,611	$253,578
25	Proposed DS	$517,478	$517,478	$517,478	$517,478	$517,478
26	SRF CIP	$0	$0	$0	$0	$0
27	GO Bond	$493,500	$1,563,181	$930,766	$291,218	$300,537
28	**Total Use of Funds**	**$7,923,213**	**$6,915,473**	**$6,527,998**	**$6,593,318**	**$6,761,721**
29						
30	**Ending Balance**	**($146,736)**	**($1,379,199)**	**($3,391,140)**	**($6,105,370)**	**($8,964,611)**

5.2.6. Proposed Wastewater Financial Plan

The Wastewater utility must increase its revenues from wastewater rates over the study period to adequately fund its operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding. Raftelis worked closely with City staff and the RSAC over nearly a dozen public meetings to identify financial plan options for consideration. The selected financial plan and annual revenue adjustments are shown in **Table 5-16**. Revenue adjustments represent annual percent increases in total rate revenue relative to rate revenue generated by the prior year's wastewater rates.

Table 5-16: Proposed Wastewater Revenue Adjustments

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028
1	Effective Month	July 1, 2023	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027
2	Revenue Adjustments	50%	4%	4%	4%	4%

Table 5-17 combines projected Fund 571 revenues (from **Table 5-8**), O&M expenses (from **Table 5-9**), and debt service (from **Table 5-10)** to generate operating cash flow projections under the proposed financial plan. By implementing the proposed revenue adjustments, we project that the Wastewater Operating Fund (Fund 571) will maintain sufficient operating cash flow and debt coverage through the study period. **Appendix B** shows the proposed 10-year pro forma for the entire Wastewater utility, including the Wastewater Operating Fund (Fund 571), Wastewater Capital Fund (Fund 773), and Wastewater Impact Fund (Fund 774). Under the proposed financial plan, debt coverage is projected to achieve target policies and minimum requirements in all years of the rate-setting period.

Table 5-17: Wastewater Operating Cash Flow (Fund 571) – Proposed Financial Plan

Line	A Description	B	C FY 2023	D FY 2024	E FY 2025	F FY 2026	G FY 2027	H FY 2028
1	Revenues							
2	Revenue from Existing Rates		$3,471,761	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285
3								
4	Revenue Adjustments	Adjustment						
5	FY 2023	0.0%	$0	$0	$0	$0	$0	$0
6	FY 2024	50.0%		$1,760,076	$1,766,902	$1,773,771	$1,780,684	$1,787,642
7	FY 2025	4.0%			$212,028	$212,853	$213,682	$214,517
8	FY 2026	4.0%				$221,367	$222,229	$223,098
9	FY 2027	4.0%					$231,119	$232,022
10	FY 2028	4.0%						$241,303
11	Revenue Adjustments		$0	$1,760,076	$1,978,930	$2,207,990	$2,447,714	$2,698,581
12	Total Revenues from Rates		$3,471,761	$5,280,228	$5,512,733	$5,755,532	$6,009,083	$6,273,866
13	Other Operating Revenue		$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
14	Investment Income		$20,000	$38,798	$46,107	$34,477	$35,916	$37,354
15	**Total - Revenues**		$3,494,661	$5,321,927	$5,561,740	$5,792,909	$6,047,899	$6,314,120
16								
17	Operating Expenses							
18	Operating Expenses		$3,128,516	$3,596,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460
19	Temp/Part Time (WWTP temp operators)		$730,000	$600,000	$0	$0	$0	$0
20	**Total Operating Expenses**		$3,858,516	$4,196,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460
21								
22	Net Revenue		($363,855)	$1,125,837	$1,797,747	$1,861,560	$1,950,319	$2,042,661
23								
24	Existing Debt Service		$252,047	$252,810	$253,295	$254,348	$253,611	$253,578
25	Proposed Debt Service		$342,235	$517,478	$517,478	$517,478	$517,478	$517,478
26	**Annual Debt Service**		$594,282	$770,288	$770,773	$771,826	$771,089	$771,056
27								
28	Net Cash		($958,137)	$355,550	$1,026,975	$1,089,734	$1,179,231	$1,271,605
29								
30	Debt Service Coverage							
31	Calculated Coverage		(0.61)	1.46	2.33	2.41	2.53	2.65
32	Target Coverage		1.20	1.20	1.20	1.20	1.20	1.20

Figure 5-2 shows projected debt coverage (blue line) relative to the debt coverage requirement (gray line) over the study period. Debt coverage remains above the requirement throughout the study period.

Figure 5-2: Proposed Wastewater Financial Plan - Debt Coverage

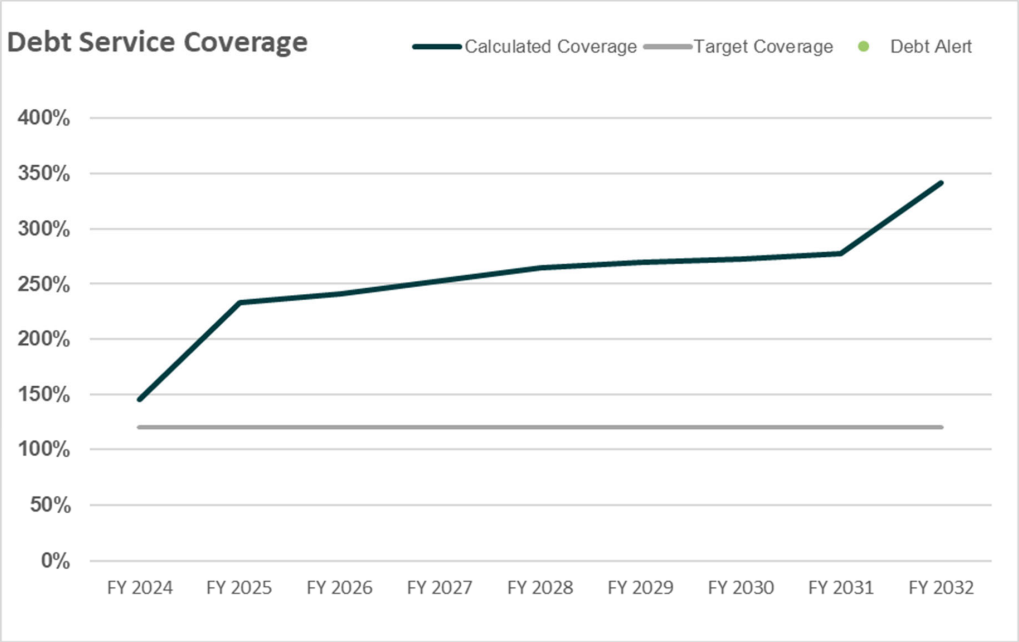


Figure 5-3 shows the Wastewater projected ending balance under the proposed financial plan. The light blue bars indicate the ending balance. The target and minimum reserve levels are shown by the blue and yellow lines, respectively. The Wastewater utility is projected to build its reserves through the planning period. By the end of the planning period, the Wastewater enterprise's reserves are projected to remain between the reserve minimum and the reserve target, with the proposed rate increases.

Figure 5-3: Proposed Wastewater Financial Plan – Projected Ending Balances

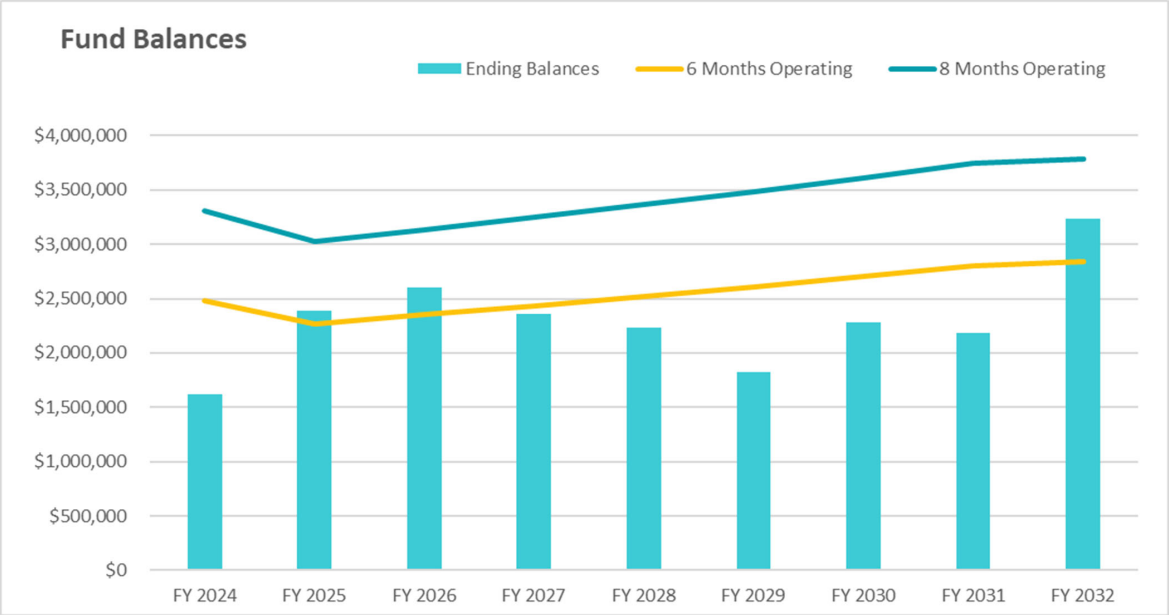
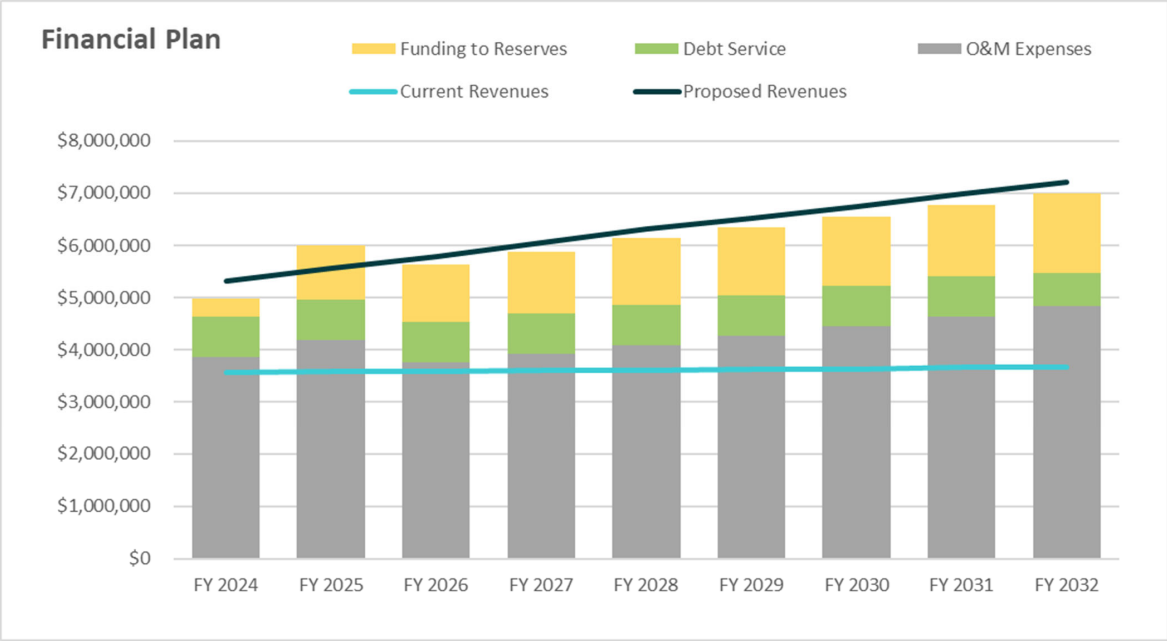


Figure 5-4 shows the proposed versus status quo operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and blue lines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding are represented by the various stacked bars. Revenue adjustments are required to generate sufficient revenue to recover O&M expenses and debt service payments over the study period.

Figure 5-4: Proposed vs. Status Quo Wastewater Financial Plan



5.3. Wastewater Cost of Service Analysis

This section details the cost of service (COS) analysis performed for the Wastewater Enterprise for the rate-setting year FY 2024. The COS analysis allocates the overall rate revenue requirement to customer classes based on their proportion of burden on the wastewater system. This provides the basis for the development of proposed wastewater rates through FY 2028.

5.3.1. Methodology

The first step in a COS analysis is to determine the revenue required from wastewater rates. The total revenue requirement results from the wastewater financial plan in Section 1.6. The methodology to develop the COS analysis and to apportion the revenue requirement to user classes is informed by the WEF's Manual of Practice (MOP) No. 27 Financing and Charges for Wastewater Systems. COS analyses are tailored to meet the specific needs of each wastewater system. However, there are four distinct steps in every COS analysis to recover costs from customers in an accurate, equitable, and defensible manner:

1. **Cost functionalization**: O&M expenses and capital assets are categorized by their function in the wastewater system. Functions include collection, treatment, and customer service, among others.
2. **Cost causation component allocation**: Functionalized costs are then allocated to cost causation components based on their burden on the wastewater system. The cost causation components include flow (wastewater generated), biochemical oxygen demand (BOD), and suspended solids (SS), customer billing costs, and general (indirect) costs. The revenue requirement is allocated accordingly to the cost causation components and results in the total share of the revenue requirement attributable to each cost component.
3. **Mass balance analysis**: The flow and strength (BOD and SS) of wastewater treatment plant (WWTP) influent is attributed to each customer class based on water use data and wastewater generation and strength assumptions that vary by user classification. This analysis estimates the burden each customer class places on the wastewater system.
4. **Revenue requirement distribution**: The mass balance analysis is utilized to distribute the revenue requirement for each cost causation component unit cost to customer classes based on each customer class's individual burden on the wastewater system.

5.3.2. Wastewater Rate Revenue Requirement

Table 5-18 shows the determination of the wastewater rate revenue requirement for FY 2024 (also referred to as the test year). The revenue requirement is split into operating and capital categories (Columns B-C), which are later allocated based on either O&M expenses or capital assets. The revenue requirements (Lines 2-3) include FY 2024 O&M expenses and debt service. The revenue offsets (Lines 8-9) include all Fund 571 non-rate revenues. These revenues are applied as offsets (reductions) to the final rate revenue requirement. The adjustment for cash balance (Line 12) is equal to FY 2024 negative net operating cash flow under the proposed financial plan and represents the additional rate revenue required to replenish cash reserves in FY 2024. All values are from the proposed wastewater financial plan operating cash flow (**Table 5-17**). The final rate revenue requirement (Line 15) is calculated as follows:

Total revenue required from rates (Line 15) = Revenue requirements (Line 4) - Revenue offsets (Line 9) – Adjustments (Line 13)

Table 5-18: FY 2024 Wastewater Rate Revenue Requirement

Line	A Revenue Requirement	B Operating	C Capital	D Total
1	Revenue Requirement			
2	Operating Expenses	$4,196,090	$0	$4,196,090
3	Debt Service	$0	$770,288	$770,288
4	Total	$4,196,090	$770,288	$4,966,377
5				
6	Revenue Offsets			
7	Other Operating Revenue	$2,900	$0	$2,900
8	Investment Income	$38,798	$0	$38,798
9	Total Revenue Offsets	$41,698	$0	$41,698
10				
11	Adjustments			
12	Adjustment for Cash Balance	($355,550)	$0	($355,550)
13	Total - Adjustments	($355,550)	$0	($355,550)
14				
15	**Total Revenue Requirement**	**$4,509,941**	**$770,288**	**$5,280,228**

5.3.3. Functionalization and Allocation of Expenses

After determining the revenue requirement, the next step of the wastewater COS analysis is to allocate O&M expenses and capital assets to the following functional categories:

- **Treatment**: costs associated with the wastewater treatment facilities to treat wastewater to discharge and disposal standards
- **Collection**: costs related to the system of collection and conveyance of wastewater discharges from customers to the wastewater treatment plant
- **Customer**: costs of billing, revenue collections, and other customer services functions
- **General:** costs for general administration and operational expenses or any other costs that do not clearly relate to another direct functional category (i.e., indirect costs)

The functionalization of costs allows for the allocation of costs to cost causation components. Some cost causation components correspond directly to a functional category listed above. The cost causation components include:

- **Flow**: costs that vary based on the quantity of wastewater generated
- **Biochemical Oxygen Demand**: costs that vary based on the BOD strength parameter of wastewater; BOD is a measure of wastewater strength based on the amount of organic matter contained in wastewater prior to treatment and generally defined in terms of milligrams per liter (mg/L) or parts per million (ppm).
- **Suspended Solids**: costs that vary based on the SS strength parameter of wastewater; Suspended Solids are a measure of wastewater strength based on the amount of solid particles in suspension in wastewater prior to treatment also generally expressed in milligrams per liter (mg/L) or parts per million (ppm).
- **Customer**: directly associated with the Customer functional category
- **General**: directly associated with the General functional category

Table 5-19 shows the basis for allocating each functional category to the various cost causation components. This provides the basis for allocating O&M and capital expenses in the following subsections. The Collection functional category is allocated entirely to the Flow cost causation component because collection-related costs depend on the quantity of wastewater rather than the quality (strength) of wastewater. Treatment costs are then allocated to Flow, BOD, and SS based on Raftelis' estimate of the wastewater treatment plant's cost drivers to treat wastewater to standards. The Customer and General functional categories are allocated entirely to the corresponding cost causation component. Raftelis' estimates are based on the framework and guidance within WEF MOP 27, Chapter 6 as well as our professional judgment with similar treatment facilities.

Table 5-19: Allocation of Functional Categories to Wastewater Cost Causation Components

Line	A Functional Categories	B Flow	C BOD	D TSS	E Billing	F General	G Total
1	Collection	100%	0%	0%	0%	0%	100%
2	Treatment	50%	25%	25%	0%	0%	100%
3	Customer Billing	0%	0%	0%	100%	0%	100%
4	General	0%	0%	0%	0%	100%	100%

5.3.4. Wastewater Enterprise O&M Expense Allocation

The next step of the COS analysis is to develop an allocation basis for the operating revenue requirement based on the functionalization of the Wastewater enterprise's O&M expenses. Raftelis worked with City staff to allocate Wastewater O&M expenses by line item to the most closely associated functional category. **Table 5-20** summarizes FY 2024 Wastewater O&M expenses by functional category. This intermediate step is necessary to allocate wastewater O&M expenses to individual cost causation components.

Table 5-20: Summary of Wastewater O&M Expenses by Functional Category

Line	A Function	B FY 2023-24 O&M Expenses	C Percent of Total
1	Collection	$624,989	14.9%
2	Treatment	$1,851,580	44.1%
3	Customer Billing	$280,874	6.7%
4	General	$1,438,647	34.3%
5	**Total**	**$4,196,090**	**100.0%**

Table 5-21 shows the allocation of FY 2024 O&M expenses by functional category to each cost causation component. The percent allocation of each functional category (Columns B-F) to the various cost causation components was determined in **Table 5-19**. Total O&M expenses associated with each functional category (Column G) were determined in **Table 5-20**. The total dollar amount allocated to each cost causation component (Line 5) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories. The total operating revenue requirement equals the operating revenue requirement from **Table 5-18**.

Table 5-21: Allocation of Wastewater O&M Expenses to Cost Causation Components

Line	A Function	B Flow	C BOD	D TSS	E Billing	F General	G Total
1	Collection	$624,989	$0	$0	$0	$0	$624,989
2	Treatment	$925,790	$462,895	$462,895	$0	$0	$1,851,580
3	Customer Billing	$0	$0	$0	$280,874	$0	$280,874
4	General	$0	$0	$0	$0	$1,438,647	$1,438,647
5	**Total**	**$1,550,779**	**$462,895**	**$462,895**	**$280,874**	**$1,438,647**	**$4,196,090**

5.3.5. Wastewater Enterprise Capital Allocation

Capital assets are utilized in COS analyses to allocate the capital revenue requirement to the various cost causation components. The distribution of short-term CIP project costs can be heavily weighted to specific cost causation components based on the type of projects. Use of short-term plans to allocate capital costs may cause rates to fluctuate and result in customer confusion. The overall wastewater asset base, however, is considerably stable in the long-term, and therefore is more representative of long-term capital investment in the wastewater system. Thus, functionalized capital assets are used to allocate capital costs.

City staff provided Raftelis with a detailed asset listing that included the original cost of each individual wastewater asset. Raftelis calculated the replacement cost less depreciation (RCLD) of each asset based on net book value using the ENR CCI for San Francisco to account for capital cost inflation. As part of the capital asset analysis, Raftelis assigned each individual asset to a functional category with the assistance of City staff. Total wastewater asset value (RCLD) by functional category is shown in **Table 5-22.** Percentages are rounded to the nearest one-tenth of one percent.

Table 5-22: Summary of Wastewater Capital Assets by Functional Category

Line	A Function	B Asset Value (RCLD)	C Percent of Total
1	Collection	$1,388,917	45.9%
2	Treatment	$1,338,148	44.2%
3	Customer Billing	$0	0.0%
4	General	$299,998	9.9%
5	**Total**	**$3,027,064**	**100.0%**

Table 5-23 shows the allocation of capital assets by functional category to each cost causation component. The percentage allocation of each functional category (Columns B-F) to the various cost causation components was determined in **Table 5-19**. Total capital assets associated with each functional category (Column G) were determined in **Table 5-22**. The total dollar amount allocated to each cost causation component (Line 5) is determined by multiplying the total asset value associated with each functional category by the corresponding percentage allocation and summing across all functional categories. This is consistent with the methodology used to determine the allocation of O&M expenses to cost causation components in **Table 5-21**.

Table 5-23: Allocation of Functionalized Wastewater Capital Assets to Cost Causation Components

Line	A Function	B Flow	C BOD	D SS	E Billing	F General	G Total
1	Collection	$1,388,917	$0	$0	$0	$0	$1,388,917
2	Treatment	$669,074	$334,537	$334,537	$0	$0	$1,338,148
3	Customer Billing	$0	$0	$0	$0	$0	$0
4	General	$0	$0	$0	$0	$299,998	$299,998
5	**Total**	**$2,057,991**	**$334,537**	**$334,537**	**$0**	**$299,998**	**$3,027,064**

5.3.6. Wastewater Cost of Service Allocation

Table 5-24 shows the allocation of the total FY 2024 wastewater rate revenue requirement to the various cost causation components. The COS allocations (Column E) provide the basis for FY 2024 rate calculations shown in **Section 5.4**. The results shown in **Table 5-24** are calculated as follows based on intermediate results developed in the preceding subsections:

1. Operating Revenue Requirement (Column B): The total operating revenue requirement consists of the Wastewater Enterprise's O&M expenses less revenue offsets. The allocation of the total operating revenue requirement to each cost causation component was previously determined in **Table 5-21**, Columns B-F, Line 5.

2. Capital Revenue Requirement (Column C): The total capital revenue requirement consists of debt service and cash reserves. The allocation of the total capital revenue requirement to each cost causation component was previously determined in **Table 5-23**, Columns B-F, Line 5).

3. Reallocation of General Costs (Column D): The total General cost allocation equals the operating revenue requirement (Column B, Line 6) and capital revenue requirement (Column C, Line 6) allocated to the General cost causation component. The total General revenue requirement is fully reallocated to all other cost causation components on a pro rata basis (Column D, Lines 1-4). Note that the reallocation results in a shifting of costs between cost causation components but does not change the total rate revenue requirement.

4. Final Cost of Service Allocation (Column E): The final COS allocation to each cost causation component (Column E, Lines 1-5) equals the sum of Columns B-D. Note that the total COS allocation (Column E, Line 7) equals the total FY 2023-24 wastewater rate revenue requirement (from **Table 5-18**, Column D, Line 15).

Table 5-24: Wastewater Cost of Service Allocation (Test Year FY 2023-24)

Line	A Cost Causation Component	B Operating Revenue Requirement	C Capital Revenue Requirement	D Reallocation of General Costs	E COS Allocation
1	Flow	$1,666,771	$523,691	$971,727	$3,162,189
2	BOD	$497,518	$85,129	$258,472	$841,118
3	TSS	$497,518	$85,129	$258,472	$841,118
4	Billing	$301,882	$0	$133,920	$435,802
5	General	$1,546,252	$76,340	-$1,622,592	$0
6	**Total**	**$4,509,941**	**$770,288**	**$0**	**$5,280,228**

5.3.7. Mass Balance Analysis

The next step of the wastewater COS analysis is to attribute flow and strength loadings of the City's wastewater treatment plant to various user classifications. This is necessary to allocate the Flow, BOD, and TSS cost causation components to each customer class for recovery by the proposed wastewater rates.

Table 5-25 shows Raftelis' mass balance analysis of the WWTP based on plant influent data for FY 2022. The result is attribution of flow and strength loadings to each customer class. Key inputs and assumptions include:

- Total FY 2022 wastewater flows entering the wastewater treatment plant (from City staff)
- Measurements of FY 2022 strength concentration for BOD and SS (from City staff)
- Detailed FY 2022 strength measurements for all non-residential customers (from City staff and industry standard loadings from the State Water Resources Control Board (SWRCB))
- FY 2022 water use associated with non-residential wastewater customers (from City staff)
- Estimated system Influent and Infiltration (I&I) from non-connection discharges (e.g., manhole covers, pipe cracks, wet weather flow/stormwater, etc.)
- Residual plant influent is then attributable to Residential class wastewater generation. That is, the difference between net plant influent and estimated wastewater generation from all non-residential sources is Residential wastewater flow. After applying all residual wastewater generation to Residential customers, Raftelis estimates that the residential wastewater discharge factor for the City's wastewater service area is approximately 45-50 gallons per capita per day, which is well within the bounds of industry norms based on the City's climate, household density, and seasonality of residency.

Table 5-25: FY 2021-22 Mass Balance Analysis

Line	A Description	B Flow (HCF/yr)	C BOD (mg/L)	D TSS (mg/L)	E Flow (MG)	F BOD (lbs/yr)	G TSS (lbs/yr)
1	Total Flow	227,005	375	320	169.8	531,394	453,456
2	Less: I&I	45,401	200	200	33.96	56,682	56,682
3	**Net Flow**	**181,604**	**175**	**120**	**135.84**	**474,712**	**396,774**
4							
5	**Commercial**						
6	Car Wash	582	20	150	0.44	73	545
7	Religious Places/Community Centers	1,774	130	110	1.33	1,440	1,218
8	Commercial	18,875	150	200	14.12	17,674	23,565
9	Groceries and Mortuaries	1,144	800	800	0.86	5,713	5,713
10	Laundry	4,699	150	110	3.51	4,400	3,226
11	Mixed Retail	2,398	240	600	1.79	3,592	8,981
12	Lodging with Food	12,061	500	600	9.02	37,645	45,174
13	Lodging without Food	8,861	310	120	6.63	17,148	6,638
14	Restaurant	8,688	1,000	600	6.50	54,234	32,540
15	Napa Valley College	589	130	100	0.44	478	368
16	Service Station	591	180	280	0.44	664	1,032
17	Winery Pre-Treated	1,555	200	200	1.16	1,942	1,942
18	Winery Non-Treated	1,074	2,800	400	0.80	18,765	2,681
19	Schools	7,517	130	100	5.62	6,100	4,693
20	**Total Non-Residential**	**70,408**	**386**	**315**	**52.67**	**169,867**	**138,317**
21							
22	**Net Residential Flow**	**111,196**	**439**	**372**	**83.17**	**304,845**	**258,457**

5.3.8. Wastewater Unit Costs

The next step of the wastewater COS analysis is to develop unit costs for each cost causation component. This is necessary to allocate the revenue requirement to each customer class in subsequent steps of the COS analysis. **Table 5-26** shows the calculation of unit costs (Line 4) by dividing the COS allocation for each cost causation component in Line 1 (from **Table 5-24**) by the corresponding units of service in Line 2. Flow, BOD, and SS units of service are based on net plant influent estimates from the mass balance analysis (see **Table 5-25**). Customer billing units of service equal the number of bi-monthly wastewater bills in FY 2024.

Table 5-26: Wastewater Unit Costs (Test Year FY 2024)

Line	A Description	B Flow	C BOD	D TSS	E Billing
1	Cost of Service	$3,162,189	$841,118	$841,118	$435,802
2	Total Units of Service	191,997	586,750	491,763	10,957
3	Units	(HCF)	(lbs)	(lbs)	(bills)
4	Total Unit Cost of Service	$16.47	$1.43	$1.71	$39.77

5.3.9. Wastewater Cost Allocation to Customer Classes

Table 5-27 shows the allocation of the rate revenue requirement by cost causation component to each customer class based on unit costs and units of service. The units of service shown for each customer class for the Flow, BOD, and SS cost causation components were previously determined as part of the mass balance analysis (see **Table 5-25**). Cost allocations to each customer class simply equal the unit cost (**Table 5-26**) multiplied by the corresponding units of service (**Table 5-25**).

Table 5-27: Wastewater Cost Allocation to Customer Classes (Test Year FY 2023-24)

Line	A Customer Class	B Flow	C BOD	D TSS	E Billing	F Total COS
1	SFR	$1,294,140	$397,577	$402,186	$362,836	$2,456,739
2	MFR	$487,895	$125,065	$126,515	$24,274	$763,749
3	Mobile Homes	$220,528	$74,969	$75,838	$485	$371,821
4						
5	Commercial					
6	Car Wash	$9,593	$104	$933	$239	$10,868
7	Religious Places/Community Centers	$29,216	$2,064	$2,083	$3,341	$36,704
8	Commercial	$310,868	$25,335	$40,305	$33,172	$409,681
9	Groceries and Mortuaries	$18,843	$8,190	$9,772	$716	$37,521
10	Laundry	$77,389	$6,307	$5,519	$239	$89,453
11	Mixed Retail	$39,494	$5,150	$15,362	$716	$60,721
12	Lodging with Food	$198,649	$53,965	$77,267	$477	$330,358
13	Lodging without Food	$145,946	$24,582	$11,354	$1,193	$183,075
14	Restaurant	$143,091	$77,745	$55,657	$4,057	$280,550
15	Napa Valley College	$9,707	$686	$629	$239	$11,260
16	Service Station	$9,726	$951	$1,765	$716	$13,158
17	Winery Pre-Treated	$25,614	$2,783	$3,321	$239	$31,957
18	Winery Non-Treated	$17,682	$26,899	$4,585	$477	$49,644
19	Non-Residential Subtotal	$1,035,816	$234,762	$228,552	$45,820	$1,544,951
20						
21	Schools	$123,810	$8,745	$8,026	$2,386	$142,968
22						
23	**Total**	**$3,162,189**	**$841,118**	**$841,118**	**$435,802**	**$5,280,228**

5.3.10. Wastewater Revenue Recovery within Customer Classes

After determining the cost to serve in the preceding section, costs are then allocated among the primary user classes for purposes of determining costs to be recovered via fixed service charges and variable flow charges. Fixed charges for SFR customers are referred to as base charges and are the same for each connection. Fixed charges for all other customers vary by the size of the water meter serving the wastewater connection.

SFR Fixed / Variable Recovery

Table 5-28 shows the proposed recovery of SFR costs between fixed and variable charges. All flow and billing costs are proposed to be recovered via the base charges and all strength-related costs (Residential BOD and Residential TSS) recovered via the flow charges. This apportionment maintains the existing fixed and variable rate structure and maintains a high degree of fixed revenue recovery.

Table 5-28: Cost of Service Recovery – SFR Fixed & Variable

Cost Components	Total COS	% Fixed	Base Charge (Fixed)	AWC Charge (Variable)
Residential Flow	$1,294,140	100%	$1,294,140	$0
Residential BOD	$397,577	0%	$0	$397,577
Residential TSS	$402,186	0%	$0	$402,186
Residential Billing	$362,836	100%	$362,836	$0
Total	**$2,456,739**		**$1,656,976**	**$799,763**

Table 5-29 shows the proposed recover of MFR costs between fixed and variable charges. All flow and billing costs are proposed to be recovered via the service charges and all strength-related costs recovered via the flow charges. This apportionment maintains the existing fixed and variable rate structure and maintains a high degree of fixed revenue recovery. Note that for MFR (including multi-family, multi-unit, and mobile home sub-classes) it is City policy to recovery the fixed charges from meter-based service charges (like Commercial users) and variable charges from AWC charges (like SFR customers). This policy is shown in the subsequent tables where MFR fixed charges are added to the derivation of meter-based charges and MFR variable charges are added to the derivation of AWC charges.

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Table 5-29: Cost of Service Recovery – MFR[6] Fixed & Variable

Cost Components	Total COS	% Fixed	Service Charge (Fixed)	AWC Charge (Variable)
Residential Flow	$708,423	100%	$708,423	$0
Residential BOD	$200,034	0%	$0	$200,034
Residential TSS	$202,353	0%	$0	$202,353
Residential Billing	$24,759	100%	$24,759	$0
Total	**$1,135,570**		**$733,182**	**$402,388**

Table 5-30 shows the proposed recovery of Non-Residential (non-SFR & MFR) costs between fixed and variable charges. 70 percent of flow costs and all billing costs are proposed to be recovered via the meter-based service charges. All strength-related costs are recovered via the flow charges based on water use for non-residential users. This apportionment maintains the existing rate structure and a similar degree of fixed revenues, while minimizing the impacts between the existing rate components.

Table 5-30: Cost of Service Recovery – Non-Residential Fixed & Variable

Cost Components	Total COS	% Fixed	Service Charge (Fixed)	Use Charge (Variable)
Residential Flow	$1,159,627	70%	$811,739	$347,888
Residential BOD	$243,507	0%	$0	$243,507
Residential TSS	$236,578	0%	$0	$236,578
Residential Billing	$48,207	100%	$48,207	$0
Total	**$1,687,919**		**$859,945**	**$827,974**

Table 5-31 shows the summation of all costs to be recovered based on AWC. SFR and MFR costs are summed together to determine the total costs. This total becomes the numerator in deriving the AWC charges in the next sub-section.

[6] MFR includes all connections designated as multi-family, multi-unit, and mobile homes.

Table 5-31: Average Winter Consumption Costs – Residential

Cost Components	AWC Costs SFR	AWC Costs MFR	Total AWC Costs
Residential Flow	$0	$0	**$0**
Residential BOD	$397,577	$200,034	**$597,611**
Residential TSS	$402,186	$202,353	**$604,540**
Residential Billing	$0	$0	**$0**
Total	**$799,763**	**$402,388**	**$1,202,151**

Table 5-32 shows the calculation of the Non-Residential service charges, which include all non-residential user classes as well as MFR fixed components. The fixed portion under the Flow row of **Table 5-29** and **Table 5-30** are summed together and become the total Service Component (Meter) in **Table 5-32**. Similarly, the fixed portion under the Billing row in **Table 5-29** and **Table 5-30** are summed together and become the total Service Component (Customer) in **Table 5-32**. Each component is divided by its respective denominator (equivalent meters and customer accounts) to yield the bi-monthly charge for each.

Table 5-32: Non-Residential Service Charge Calculations[7]

	Service Component (Meter)	Service Component (Customer)
Total Service Charge Cost	$1,520,162	$72,966
Non-Residential Equivalent Meters	1,199	311
Bi-Monthly Charge per Equivalent Meter	$211.37	$39.13
Monthly Charge per Equivalent Meter	$105.69	$19.57

Table 5-33 shows the calculation of the unit rates of flow for Non-Residential user classes. Each respective unit of service (Flow, BOD, TSS) is summed across all user groups and divided into the total revenue required from each (from the Use Charge column of **Table 5-30**). This yields the unit cost of each component which is utilized in the following sub-section to derive user rates.

[7] Per the City's policy, MFR connections pay fixed charges like Non-Residential connections, by water meter size

Table 5-33: Non-Residential Flow Unit Rate Calculations

Non-Residential User Classes	Flow (HCF)	BOD (lbs)	TSS (lbs)	Billing (Accounts)
Car Wash	582	73	545	
Religious Places/Community Centers	1,774	1,440	1,218	
Commercial	18,875	17,674	23,565	
Groceries and Mortuaries	1,144	5,713	5,713	
Laundry	4,699	4,400	3,226	
Mixed Retail	2,398	3,592	8,981	
Lodging with Food	12,061	37,645	45,174	
Lodging without Food	8,861	17,148	6,638	
Restaurant	8,688	54,234	32,540	
Napa Valley College	589	478	368	
Service Station	591	664	1,032	
Winery Pre-Treated	1,555	1,942	1,942	
Winery Non-Treated	1,074	18,765	2,681	
Schools (Per Student)	7,517	6,100	4,693	
Total	**70,408**	**169,867**	**138,317**	**-**
Total Revenue Required from Flow	$347,888	$243,507	$236,578	$0
Unit Costs	**$4.94**	**$1.43**	**$1.71**	**#N/A**

Table 5-34 summarizes the final cost of service and respective cost recovery component for the three primary user classes: SFR, MFR, and Non-Residential.

Table 5-34: Wastewater Cost of Service, by User Class

User Class	COS Fixed Charges	COS Variable Charges	Total Cost of Service
SFR	$1,656,976	$799,763	$2,456,739
MFR	$733,182	$402,388	$1,135,570
Non-Residential	$859,945	$827,974	$1,687,919
Total	**$3,250,104**	**$2,030,125**	**$5,280,228**

5.4. Proposed Wastewater Rates

This section shows detailed calculations of proposed wastewater rates through FY 2028. All proposed rates are first calculated directly from the results of the COS analysis (**Section 5.3**) for FY 2024.

5.4.1. Proposed Wastewater Rates (Test Year FY 2023-24)

Table 5-35, Table 5-36, and **Table 5-37** show the calculation of COS wastewater rates for the test year. The revenue requirement associated with each charge is from customer class cost allocations in the preceding sub-sections.

Table 5-35 shows the calculation of Residential wastewater rates. For Residential customers, the revenue requirement (Column B) is divided by the units of service (Column C) to calculate the cost of service rate in Column D. Columns E-F show the comparison to current rates. Recall that the fixed (base) charge includes only SFR connections whereas the variable (AWC) charge includes both SFR and MFR costs and units of service.

Table 5-36 shows the calculation of Non-Residential fixed charges. For the non-residential fixed charges, the meter component is calculated by multiplying the meter unit charge by the respective capacity; and the customer charge is uniform. The sum of the two yields the proposed bi-monthly charges in Column E (COS Rate).

Table 5-37 shows the calculation of Non-Residential variable charges. For the non-residential variable rate, the unit costs for Flow, BOD, and TSS (**Table 5-33**) are multiplied by the units for each class (Columns B-D), and then summed, to yield the total cost in Column E. The COS rate (Column F) is calculated by dividing the total COS (Column E) by the units of water usage for each customer class (Column B). Columns G-I shows the comparison to current rates.

Table 5-35: Proposed Residential Wastewater Rate Calculation (Test Year FY 2024)[8]

Line	A Description	B Revenue Requirement	C Units of Service	D COS Rate	E Current Rate	F Difference ($)	G Difference (%)
1	**Residential Fixed + Variable**						
2	Residential Fixed (per bill)	$1,656,976	1,541	$179.26	$127.35	$51.91	41%
3	Residential Variable (per HCF of AWC)	$1,202,151	121,589	$9.89	$5.58	$4.31	77%

Table 5-36: Proposed Non-Residential Fixed Wastewater Rate Calculation (Test Year FY 2024)[9]

Line	A Description	B AWWA Ratio	C Meter Charge	D Customer Charge	E COS Rate	F Current Rate	G Difference ($)	H Difference (%)
1	5/8"	1.00	$422.75	$39.13	$250.51	$176.68	$73.83	42%
2	1"	2.50	$1,056.86	$39.13	$567.57	$441.72	$125.85	28%
3	1.5"	5.00	$2,113.73	$39.13	$1,096.00	$883.42	$212.58	24%
4	2"	8.00	$3,381.96	$39.13	$1,730.12	$1,413.48	$316.64	22%
5	3"	17.50	$7,398.04	$39.13	$3,738.16	$2,826.98	$911.18	32%
6	4"	31.50	$13,316.47	$39.13	$6,697.37	$4,417.14	$2,280.23	52%
7	6"	70.00	$29,592.16	$39.13	$14,835.22	$8,834.28	$6,000.94	68%

[8] Includes MFR in the basis for calculating rates per HCF of AWC
[9] Includes MFR in the basis for calculating fixed charges

Table 5-37: Proposed Non-Residential Variable Wastewater Rate Calculation (Test Year FY 2024)

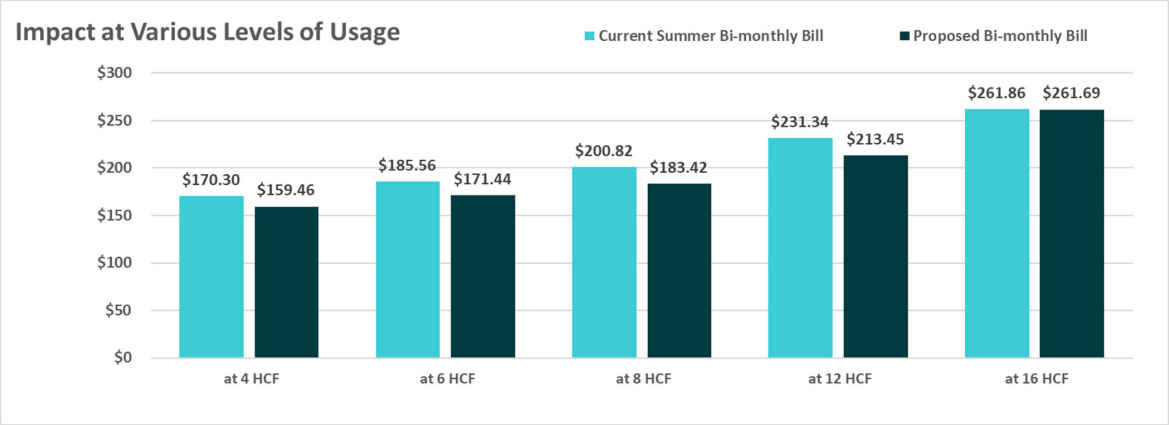
	A	B	C	D	E	F	G	H	I
Line	Description	Annual Use (HCF)	BOD (lbs)	TSS (lbs)	Total COS	COS Rate ($/HCF)	Current Rate ($/HCF)	$ Change	% Change
1	Car Wash	582	73	545	$3,914.85	$6.73	$3.86	$2.87	74%
2	Religious Places/Community Centers	1,774	1,440	1,218	$12,911.71	$7.28	$4.29	$2.99	70%
3	Commercial	18,875	17,674	23,565	$158,901.14	$8.42	$5.07	$3.35	66%
4	Groceries and Mortuaries	1,144	5,713	5,713	$23,615.24	$20.65	$13.62	$7.03	52%
5	Laundry	4,699	4,400	3,226	$35,042.26	$7.46	$4.42	$3.04	69%
6	Mixed Retail	2,398	3,592	8,981	$32,359.62	$13.50	$8.52	$4.98	58%
7	Lodging with Food	12,061	37,645	45,174	$190,827.01	$15.83	$10.22	$5.61	55%
8	Lodging without Food	8,861	17,148	6,638	$79,719.12	$9.00	$5.54	$3.46	62%
9	Restaurant	8,688	54,234	32,540	$176,329.37	$20.30	$13.50	$6.80	50%
10	Napa Valley College	589	478	368	$4,226.96	$7.18	$4.22	$2.96	70%
11	Service Station	591	664	1,032	$5,634.37	$9.55	$5.83	$3.72	64%
12	Winery Pre-Treated	1,555	1,942	1,942	$13,788.57	$8.87	$5.39	$3.48	65%
13	Winery Non-Treated	1,074	18,765	2,681	$36,789.04	$34.27	$23.75	$10.52	44%
14	Schools	7,517	6,100	4,693	$53,914.44	$7.17	$2.10	$5.07	242%

6. Customer Bill Impacts

6.1. Bi-Monthly Water Bill Impacts

Figure 6-1 shows sample bi-monthly water bills for SFR customers with a 3/4-inch water meter at varying levels of water use under both the current rates and rate structure and the proposed FY 2024 rates and rate structure. The five water use levels shown are based on account-level single family residential water billing data for FY 2022 and ranges from very low use to peak summer use of a typical SFR customer in St. Helena. The annual average use in the service area is 16 HCF bi-monthly.

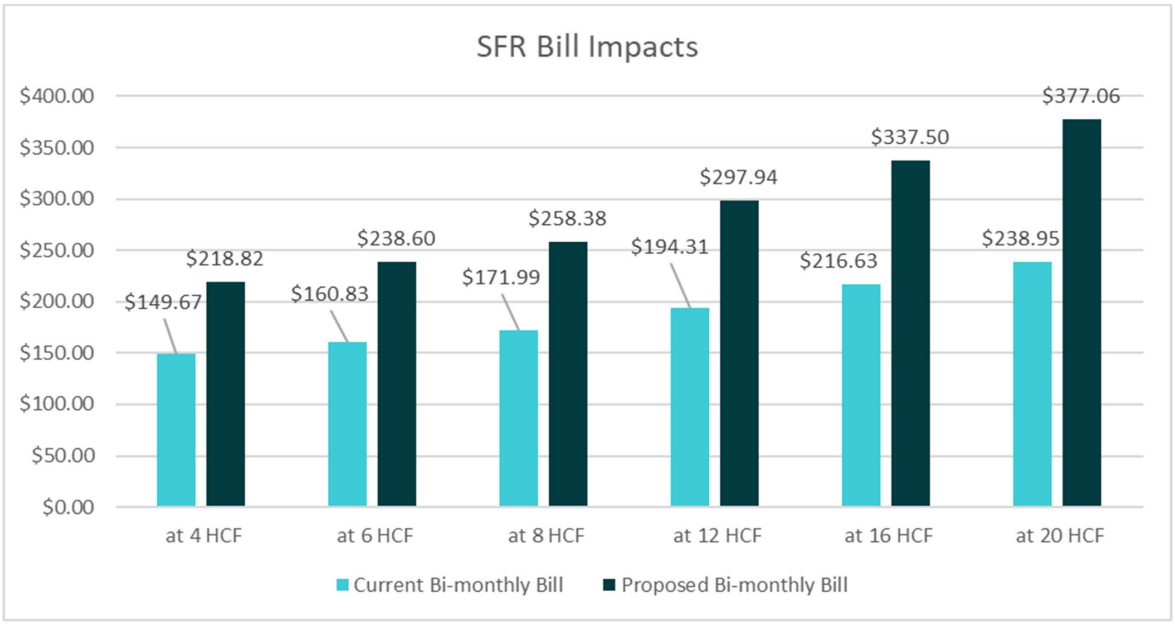
Figure 6-1: Single Family Residential Bi-Monthly Water Bill Impacts (FY 2024)



6.2. Bi-Monthly Wastewater Bill Impacts

Figure 6-2 shows sample bi-monthly wastewater bills for SFR customers at varying levels of AWC under both current rates and proposed FY 2024 rates. Bi-monthly water use levels are based on account-level SFR billing data for FY 2022. The average AWC within the service area is 8 HCF.

Figure 6-2: Single Family Residential Bi-Monthly Wastewater Bill Impacts (FY 2024)



APPENDIX A:

Water Proposed Financial Plan 10-Year Pro Forma

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028	G FY 2029	H FY 2030	I FY 2031	J FY 2032
1	**Beginning Balances**	**$2,102,348**	**$3,635,571**	**$5,574,766**	**$6,733,340**	**$8,525,619**	**$10,286,438**	**$11,478,501**	**$12,783,108**	**$13,942,281**
2										
3	**Source of Funds**									
4	Revenue from Existing Rates	$7,230,857	$7,255,117	$7,279,521	$7,304,070	$7,328,764	$7,353,604	$7,378,592	$7,403,728	$7,429,013
5	Total Revenue Adjustments	$2,024,640	$2,774,357	$3,588,746	$4,473,241	$5,433,735	$5,836,325	$6,253,199	$6,684,849	$7,131,780
6	Other Operating Revenue	$34,150	$34,150	$34,150	$34,150	$34,150	$34,150	$34,150	$34,150	$34,150
7	Investment Income	$25,358	$42,293	$57,362	$71,696	$92,637	$92,299	$104,363	$110,548	$113,951
8	Water Capital Revenues	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Water Impact Fee Revenues	$35,279	$35,619	$35,962	$36,309	$36,659	$37,013	$37,370	$37,731	$38,095
10	Bond Proceeds CIP Funding	$3,019,490	$7,160,513	$11,502,580	$9,885,943	$1,931,474	$13,253,285	$5,417,278	$5,329,437	$0
11	SRF Proceeds	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	Go Bond Proceeds	$302,400	$315,706	$327,702	$338,189	$349,011	$0	$0	$0	$0
13	Interfund CIP Funding	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	General Fund Loan (+Funds/-Payment)	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	**Total Source of Funds**	**$12,672,174**	**$17,617,755**	**$22,826,023**	**$22,143,598**	**$15,206,429**	**$26,606,675**	**$19,224,952**	**$19,600,443**	**$14,746,989**
16										
17	**Use of Funds**									
18	Operating Expenses	$6,251,002	$6,636,549	$6,926,137	$7,220,845	$7,529,145	$7,851,703	$8,189,223	$8,542,442	$8,912,137
19	One Time Expenses	$0	$0	$0	$0	$0	$0	$0	$0	$0
20	Water Impact Fund Expenses	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296
21	Rate Funded	$0	$0	$0	$0	$726,366	$0	$0	$261,193	$271,270
22	Bond Funded	$3,019,490	$7,160,513	$11,502,580	$9,885,943	$1,931,474	$13,253,285	$5,417,278	$5,329,437	$0
23	Interfund Loan Funded	$0	$0	$0	$0	$0	$0	$0	$0	$0
24	Existing Debt Service	$951,414	$951,147	$952,857	$948,168	$951,441	$949,510	$953,730	$948,082	$949,363
25	Proposed Debt Service	$613,350	$613,350	$1,956,877	$1,956,877	$1,956,877	$3,358,819	$3,358,819	$3,358,819	$3,358,819
26	Water Capital Expenses	$0	$0	$0	$0	$0	$0	$0	$0	$0
27	SRF CIP	$0	$0	$0	$0	$0	$0	$0	$0	$0
28	GO Bond	$302,400	$315,706	$327,702	$338,189	$349,011	$0	$0	$0	$0
29	**Total Use of Funds**	**$11,138,951**	**$15,678,560**	**$21,667,449**	**$20,351,318**	**$13,445,610**	**$25,414,612**	**$17,920,346**	**$18,441,270**	**$13,492,885**
30										
31	**Ending Balance**	**$3,635,571**	**$5,574,766**	**$6,733,340**	**$8,525,619**	**$10,286,438**	**$11,478,501**	**$12,783,108**	**$13,942,281**	**$15,196,384**

APPENDIX A:

Wastewater Proposed Financial Plan 10-Year Pro Forma

Line	A Description	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028	G FY 2029	H FY 2030	I FY 2031	J FY 2032
1	**Beginning Balances**	**$250,969**	**$1,622,140**	**$2,386,467**	**$2,599,061**	**$2,361,778**	**$2,231,633**	**$1,820,786**	**$2,279,079**	**$2,187,303**
2										
3	**Sources of Funds**									
4	Revenue from Existing Rates	$3,520,152	$3,533,803	$3,547,542	$3,561,369	$3,575,285	$3,589,290	$3,603,386	$3,617,573	$3,631,851
5	Total Revenue Adjustments	$1,760,076	$1,978,930	$2,207,990	$2,447,714	$2,698,581	$2,898,106	$3,104,874	$3,319,138	$3,541,161
6	Other Operating Revenue	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
7	Investment Income	$38,798	$46,107	$34,477	$35,916	$37,354	$38,540	$31,020	$41,018	$32,990
8	WW Capital Revenues	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	WW Impact Fee Revenues	$16,918	$16,918	$16,918	$16,918	$16,918	$16,918	$16,918	$16,918	$16,918
10	Bond Proceeds CIP Funding	$2,462,040	$537,960	$0	$0	$0	$0	$0	$0	$0
11	SRF Proceeds	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	USDA Proceeds	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	Go Bond Proceeds	$493,500	$1,563,181	$930,766	$291,218	$300,537	$0	$0	$0	$0
14	Interfund Proceeds	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	General Fund Loan (+Funds/-Payment)	$1,000,000	$0	$0	$0	$0	($873,610)	$0	($1,000,000)	$0
16	**Total Source of Funds**	**$9,294,385**	**$7,679,799**	**$6,740,593**	**$6,356,035**	**$6,631,576**	**$5,672,144**	**$6,759,098**	**$5,997,547**	**$7,225,820**
17										
18	**Use of Funds**									
19	Operating Expenses	$3,596,090	$3,763,992	$3,931,349	$4,097,580	$4,271,460	$4,453,368	$4,643,704	$4,842,887	$5,051,360
20	Temp/Part Time (WWTP temp operators)	$600,000	$0	$0	$0	$0	$0	$0	$0	$0
21	WW Impact Fund Expenses	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296	$1,296
22	WW Capital Fund Expenses	$0	$0	$0	$0	$0	$0	$0	$0	$0
23	Unrestricted Capital Project Costs	$2,462,040	$816,231	$892,762	$1,432,136	$1,417,372	$857,739	$885,187	$475,970	$491,201
24	Existing DS	$252,810	$253,295	$254,348	$253,611	$253,578	$253,110	$253,141	$251,692	$114,044
25	Proposed DS	$517,478	$517,478	$517,478	$517,478	$517,478	$517,478	$517,478	$517,478	$517,478
26	SRF CIP	$0	$0	$0	$0	$0	$0	$0	$0	$0
27	GO Bond	$493,500	$1,563,181	$930,766	$291,218	$300,537	$0	$0	$0	$0
28	**Total Use of Funds**	**$7,923,213**	**$6,915,473**	**$6,527,998**	**$6,593,318**	**$6,761,721**	**$6,082,991**	**$6,300,805**	**$6,089,322**	**$6,175,378**
29										
30	**Ending Balance**	**$1,622,140**	**$2,386,467**	**$2,599,061**	**$2,361,778**	**$2,231,633**	**$1,820,786**	**$2,279,079**	**$2,187,303**	**$3,237,745**

CITY OF ST. HELENA

RESOLUTION NO. 2023-

ACCEPTING THE CITY OF ST. HELENA 2023 WATER AND WASTEWATER COST OF SERVICE AND RATE STUDY.

RECITALS

A. Current Water and Wastewater rates were last reviews in 2016 and the final rate increase was implemented November 8, 2021; and

B. The current Water and Wastewater Rates do not provide adequate funding for the water and wastewater systems; and

C. On March 25, 2022, the City Council approved a resolution authorizing the City Manager to execute a Professional Services Agreement with Raftelis Financial Consultants to provide services associated with a Water and Wastewater Rate Study; and

D. On May 9, 2023 City Council accepted the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study.

RESOLUTION

NOW, THEREFORE, the City Council of the City of St. Helena resolves as follows:

The City Council accepts the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study as a final document and will utilize this study as the guiding document for setting water and wastewater rates.

Approved at a Regular Meeting of the St. Helena City Council on June 27, 2023 by the following vote:

Mayor Paul Dohring: _____

Vice Mayor Eric Hall: _____

Council Member Anna Chouteau: _____

Council Member Lester Hardy: _____

Council Member Billy Summers: _____

APPROVED:

_____
Paul Jamison Dohring, Mayor

ATTEST:

_____
Cindy Tzafopoulos, City Clerk

CITY OF ST. HELENA

RESOLUTION NO. 2023-

APPROVING THE CITY OF ST. HELENA REVISED SCHEDULE FOR WATER RATES, WASTEWATER RATES, AND DROUGHT SURCHARGES.

RECITALS

A. The City of St. Helena provides water services throughout the City, including to certain customers outside the boundaries of the City; and

B. The City of St. Helena's water system is operated as a self-supporting utility enterprise; and

C. The City operates and maintains both water and wastewater utilities including treatment and collection and distribution systems; and

D. Current Water and Wastewater rates were last reviews in 2016 and the final rate increase was implemented November 8, 2021; and

E. The City has determined that the current rate structure will not support the current and future costs of the system, including critical capital infrastructure improvements; and

F. On March 25, 2022, the City Council approved a resolution authorizing the City Manager to execute a Professional Services Agreement with Raftelis Financial Consultants to provide services associated with a Water and Wastewater Rate Study; and

G. The purpose of the study was to evaluate the rate structure to ensure rates adequately provide the necessary revenue to support maintenance, operations, and replacement/rehabilitation of the City's water and wastewater systems, and determine the level of funding required to provide residents and businesses with a safe

and reliable water and wastewater system that meets State and Federal requirements; and

H. On May 9, 2023, the City Council accepted the City of St. Helena 2023 Water and Wastewater Cost of Service and Rate Study and directed staff to proceed with Proposition 218 noticing; and

I. Pursuant to the provision of Article 13D, Section 6, of the California Constitution (e.g., Proposition 218), prior to an increase in water and wastewater rates, property owners shall be mailed a notice at least 45 days prior to the public hearing to consider an increase in any such water and wastewater rates with an explanation of: (1) the amount of the proposed rate increase, (2) the basis of which the rate increase is calculated, (3) the reason for the rate increase, and (4) the date, time, and place of the public hearing to consider the rate increase, together with an explanation of the rights of property owners to submit written protests od the proposed rate increase; and

J. The proposed rate increase may not be imposed if written protests are submitted by the majority of the property owners subject to the increased rates; and

K. On May 12, 2023, the City mailed copies the Notice of Proposed Increase in Water and Wastewater Rates and Public Hearing in English and Spanish regarding such increases to all property owners and utility customers; and

L. On June 27, 2023 prior to the adoption of this Resolution, the City Council conducted and concluded a duly notice public hearing concerning the proposed water and wastewater rate increase and considered all written and oral comments presented; and at its own conclusion the City Clerk tabulated the number of protests received, and reported that there was not a majority protest of the proposed water or wastewater rates by owners or tenants of identified parcel receiving such services; and

M. In accordance with the requirements of California Environmental Quality Act (“CEQA”), the California Public Resources Code section 21000 et seq., the State

CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 et seq., and the Environmental Impact Report Guidelines of the City of St. Helena, City staff has reviewed the proposed rate increases and recommends that the approval of the rate increase is Statutorily Exempt pursuant to CEQA Guidelines Section 15273 as it applies only to rates to obtain funds necessary to operate and maintain service for the water and wastewater system; and

N. All legal prerequisites have occurred prior to the adoption of the Resolution.

RESOLUTION

NOW, THEREFORE, the City Council of the City of St. Helena resolves as follows:

1. The procedures followed and the rate schedules proposed herein are in compliance with the California Constitution Article XIII D; and
2. The City Council hereby finds that the above recitations are true and correct and, accordingly, are incorporated as a material part of this resolution; and
3. The City Council hereby finds that the rate increase is Statutorily Exempt pursuant to CEQA Guidelines section 15273 as it applies only to rates to obtain funds necessary to operate and maintain service for the water and wastewater system; and
4. Water Rate Schedule
    a. The City Council adopts the water rate schedule in “Exhibit A” attached hereto and incorporated herein by this reference; and
5. Wastewater Rate Schedule
    a. The City Council adopts the wastewater rate schedule in “Exhibit B” attached hereto and incorporated herein by this reference; and
6. Drought Surcharge Schedule
    a. The City Council adopts the wastewater rate schedule in “Exhibit B” attached hereto and incorporated herein by this reference; and
7. Time of Effectiveness
    a. This Resolution shall take effect immediately. The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will

occur every subsequent year on July 1st for the next (5) years as follows:

i. September 1, 2023
ii. July 1, 2024
iii. July 1, 2025
iv. July 1, 2026
v. July 1, 2027

Approved at a Regular Meeting of the St. Helena City Council on June 27, 2023 by the following vote:

Mayor Paul Dohring: ____

Vice Mayor Eric Hall: ____

Council Member Anna Chouteau: ____

Council Member Lester Hardy: ____

Council Member Billy Summers: ____

APPROVED: ATTEST:

_____ _____

Paul Jamison Dohring, Mayor Cindy Tzafopoulos, City Clerk

EXHIBIT A

Table 1-3: Proposed Five-Year Water Rate Schedule – Base Condition Rates

Line	A Description	B Current	C Proposed FY 2024	D Proposed FY 2025	E Proposed FY 2026	F Proposed FY 2027	G Proposed FY 2028
1	**Bi-Monthly Fixed Charges**						
2	Meter Size						
3	5/8"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
4	3/4"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
5	SFR 1"	$139.78	$135.50	$146.34	$158.05	$170.70	$184.36
6	1"	$256.44	$288.70	$311.80	$336.75	$363.69	$392.79
7	1 1/2"	$451.28	$544.05	$587.58	$634.59	$685.36	$740.19
8	2"	$648.00	$850.46	$918.50	$991.98	$1,071.34	$1,157.05
9	3"	$1,309.44	$1,820.76	$1,966.43	$2,123.75	$2,293.65	$2,477.15
10	4"	$2,023.96	$3,250.68	$3,510.74	$3,791.60	$4,094.93	$4,422.53
11	6"	$3,963.26	$7,182.95	$7,757.59	$8,378.20	$9,048.46	$9,772.34
12							
13	Fireline Size						
14	4"	$26.66	$116.78	$126.13	$136.23	$147.13	$158.91
15	6"	$77.46	$285.71	$308.57	$333.26	$359.93	$388.73
16	8"	$165.06	$586.82	$633.77	$684.48	$739.24	$798.38
17							
18	**Volumetric Charges**						
19	All Classes						
20	Tier 1	$6.50	$5.99	$6.47	$6.99	$7.55	$8.16
21	Tier 2	$7.23	$12.06	$13.03	$14.08	$15.21	$16.43
22	Tier 3		$12.91	$13.95	$15.07	$16.28	$17.59

EXHIBIT B

Table 1-6: Proposed Five-Year Wastewater Rate Schedule

Line	A Bi-Monthly Base Charges	B Current Rates	C Proposed FY 2024	D Proposed FY 2025	E Proposed FY 2026	F Proposed FY 2027	G Proposed FY 2028
1	**Residential**						
2	Base Charge	$127.35	$179.26	$186.44	$193.90	$201.66	$209.73
3	Use Charge (AWC)	$5.58	$9.89	$10.29	$10.71	$11.14	$11.59
4							
5	**Non-Residential**						
6	Base Charge						
7	5/8"	$176.68	$250.51	$260.54	$270.97	$281.81	$293.09
8	1"	$441.72	$567.57	$590.28	$613.90	$638.46	$664.00
9	1.5"	$883.42	$1,096.00	$1,139.84	$1,185.44	$1,232.86	$1,282.18
10	2"	$1,413.48	$1,730.12	$1,799.33	$1,871.31	$1,946.17	$2,024.02
11	3"	$2,826.98	$3,738.16	$3,887.69	$4,043.20	$4,204.93	$4,373.13
12	4"	$4,417.14	$6,697.37	$6,965.27	$7,243.89	$7,533.65	$7,835.00
13	6"	$8,834.28	$14,835.22	$15,428.63	$16,045.78	$16,687.62	$17,355.13
14							
15	Use Charge (per HCF)						
16	Car Wash	$3.86	$6.73	$7.00	$7.28	$7.58	$7.89
17	Religious Places/Community Centers	$4.29	$7.28	$7.58	$7.89	$8.21	$8.54
18	Commercial	$5.07	$8.42	$8.76	$9.12	$9.49	$9.87
19	Groceries and Mortuaries	$13.62	$20.65	$21.48	$22.34	$23.24	$24.17
20	Laundry	$4.42	$7.46	$7.76	$8.08	$8.41	$8.75
21	Mixed Retail	$8.52	$13.50	$14.04	$14.61	$15.20	$15.81
22	Lodging with Food	$10.22	$15.83	$16.47	$17.13	$17.82	$18.54
23	Lodging without Food	$5.54	$9.00	$9.36	$9.74	$10.13	$10.54
24	Restaurant	$13.50	$20.30	$21.12	$21.97	$22.85	$23.77
25	Napa Valley College	$4.22	$7.18	$7.47	$7.77	$8.09	$8.42
26	Service Station	$5.83	$9.55	$9.94	$10.34	$10.76	$11.20
27	Winery Pre-Treated	$5.39	$8.87	$9.23	$9.60	$9.99	$10.39
28	Winery Non-Treated	$23.75	$34.27	$35.65	$37.08	$38.57	$40.12
29	Schools	$2.10	$7.18	$7.47	$7.77	$8.09	$8.42

EXHIBT C

: Proposed Five-Year Schedule of Water Shortage Surcharges

Line	A Drought Rates	B Phase I	C Phase II	D Phase III
1	FY 2024			
2	Tier 1	$0.89	$2.99	$5.97
3	Tier 2	$1.79	$6.01	$12.02
4	Tier 3	$1.92	$6.43	$12.87
5				
6	FY 2025			
7	Tier 1	$0.97	$3.23	$6.45
8	Tier 2	$1.94	$6.50	$12.99
9	Tier 3	$2.08	$6.95	$13.90
10				
11	FY 2026			
12	Tier 1	$1.05	$3.49	$6.97
13	Tier 2	$2.10	$7.02	$14.03
14	Tier 3	$2.25	$7.51	$15.02
15				
16	FY 2027			
17	Tier 1	$1.14	$3.77	$7.53
18	Tier 2	$2.27	$7.59	$15.16
19	Tier 3	$2.43	$8.12	$16.23
20				
21	FY 2028			
22	Tier 1	$1.24	$4.08	$8.14
23	Tier 2	$2.46	$8.20	$16.38
24	Tier 3	$2.63	$8.77	$17.53

RAFTELIS



City of St. Helena

Proposed Water and Wastewater Rates

Rate Study & Recommendation Summary | June 27, 2023

Aligning with Community Values:

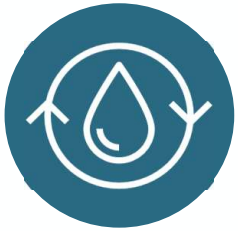
Proposed rate structure achieves these goals



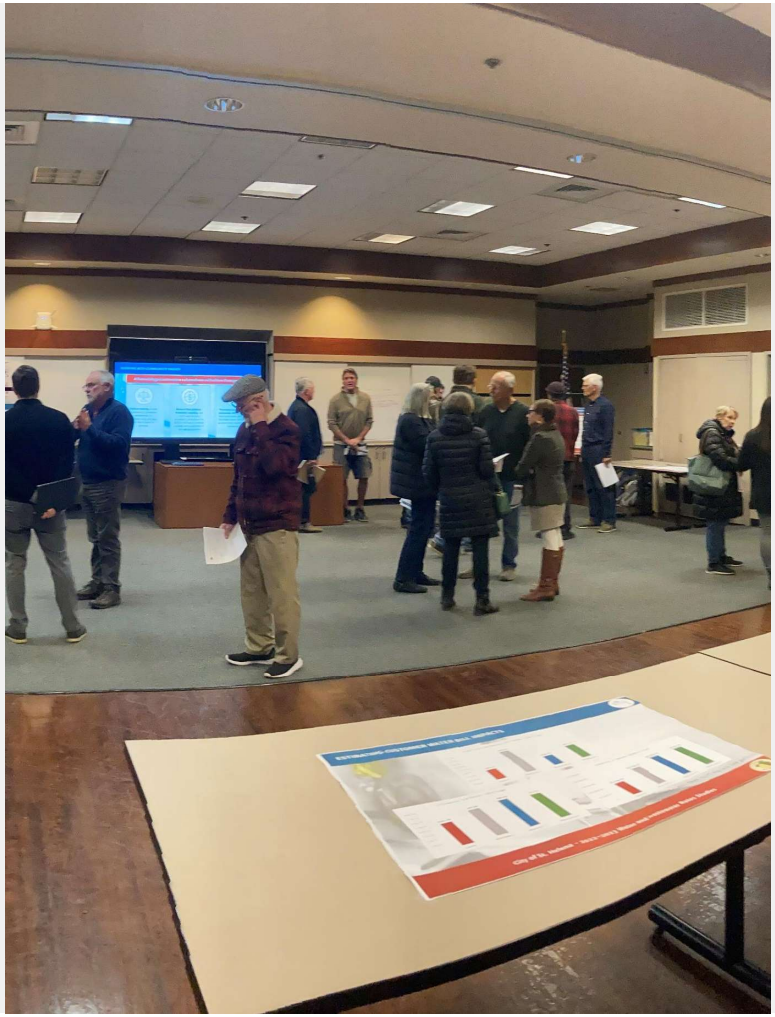
Deliver equity, so all customers, whether residential or commercial, will pay their fair share for service



Ensure the utilities' financial stability, so costs will be fully covered, and allow for $55.5 million in critical capital reinvestment in the aging system



Promote conservation and water efficiency, so that customers who use the most water will have an economic incentive to conserve



Community Engagement

11 Rate Study Advisory Committee Meetings

2 Open Houses

4 City Council Meetings

6 Social Media Posts

4 Videos

1 Bill Stuffer

1 Press Release

Financial Plan Results & Recommendation

Necessary Gross Revenue Increases by Utility:

28% for water in year one

Primary financial driver is the long-term CIP

50% for wastewater in year one

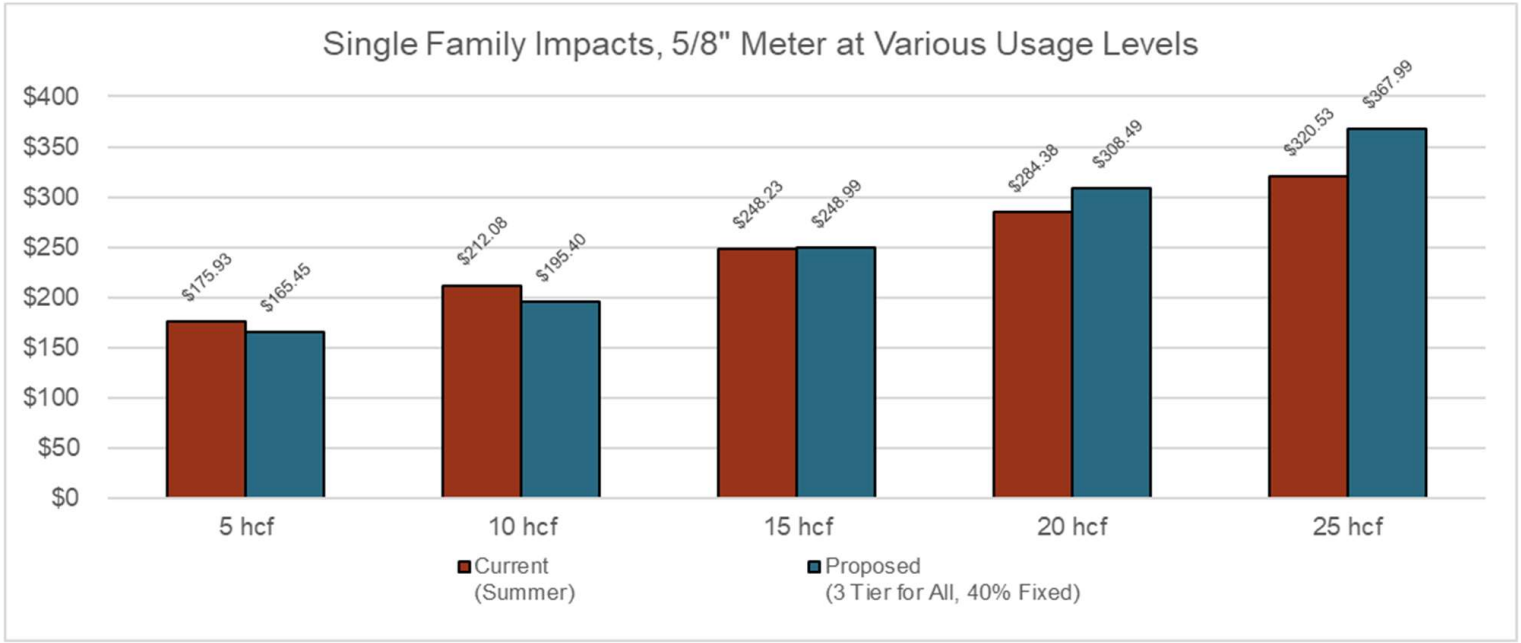
Primary financial drivers are the operating cost environment, and the current cash position

Proposed Water Rate Structure

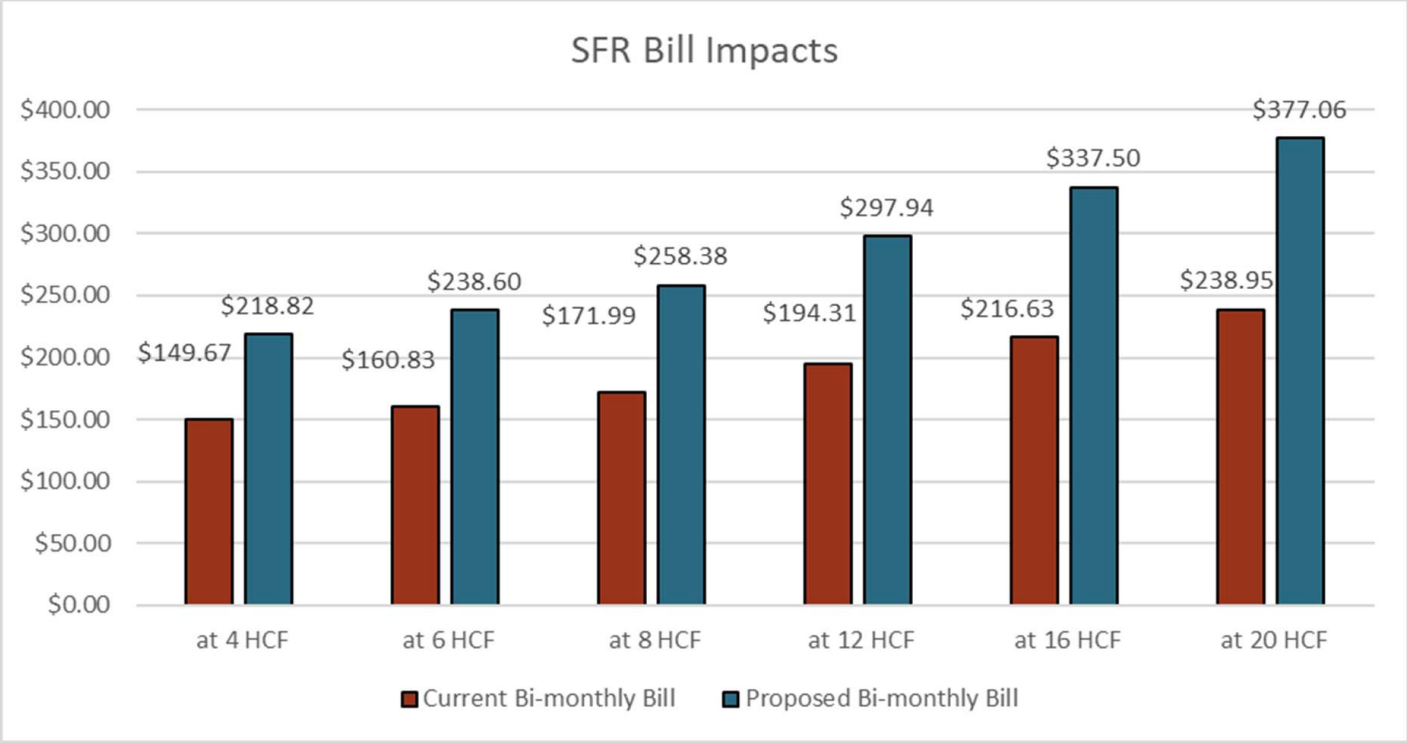
A single 3-Tier structure for all users



Single-Family Residential (SFR) Bill Impacts



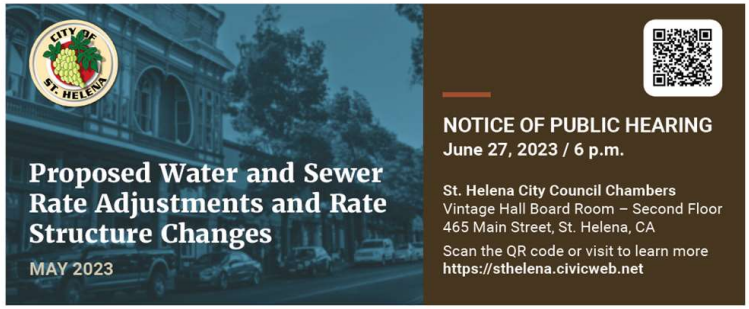
SFR Bill Impacts – Wastewater



Notice of Public Hearing

May 9, 2023

City Council directed staff to notice customers per the Proposition 218 Noticing Requirements of the June 27, 2023 Public Hearing



Dear Neighbor,

After extensive public input, the City of St. Helena is proposing water and wastewater rate structure changes and increases. These increases will pay for the required investments in critical equipment and infrastructure. You are receiving this notice in compliance with Proposition 218, which requires the City to inform property owners and water and wastewater customers that proposed rate increases are being considered. Proposed rate adjustments are based on a Cost of Service Study conducted by City staff and financial experts, with input and recommendations from the City's Water and Wastewater Rate Study Advisory Committee (RSAC). The rate recommendations were presented to St. Helena's City Council on March 14, 2023. The Cost of Service Study and information regarding this public process is available at https://bit.ly/3HKQnB4.

My thanks to all who participated in the process to date. From members of City Council and the RSAC to individuals who provided input at open house events and public meetings – all feedback was extremely valuable and helped us make an inclusive plan that will help ensure utility rates align with St. Helena's values and provide the necessary funding for stable and well-functioning water and wastewater systems.

Sincerely,

Anil Comelo
City Manager

Suggested Motion

1. **By resolution, accept the 2023 Water and Wastewater Rate Study Final Report; and**
2. **Adopt a resolution approving**
    1. **Changes to the water base rates, water use rates, fire line rates, and rate structure effective September 1, 2023; and**
    2. **Changes to the wastewater base rates, wastewater use rates, and rate structure effective September 1, 2023; and**
    3. **Approving Drought Surcharges and rate structure effective September 1, 2023: and**
    4. **The charges for water, wastewater, and drought surcharge rates will become effective on September 1, 2023, and a rate increase will occur every subsequent year on July 1st for the next (5) years as follows:**
        a. **September 1, 2023**
        b. **July 1, 2024**
        c. **July 1, 2025**
        d. **July 1, 2026**
        e. **July 1, 2027**

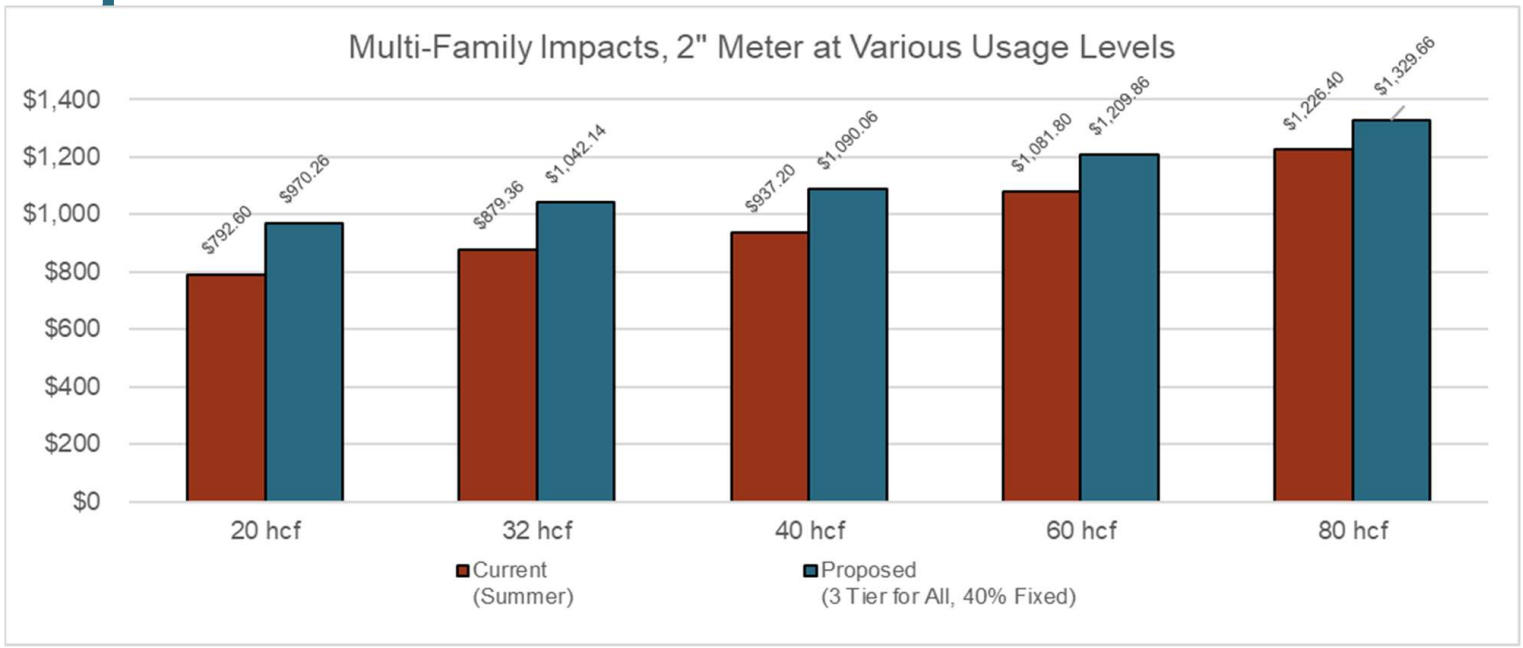
RAFTELIS

Thank you

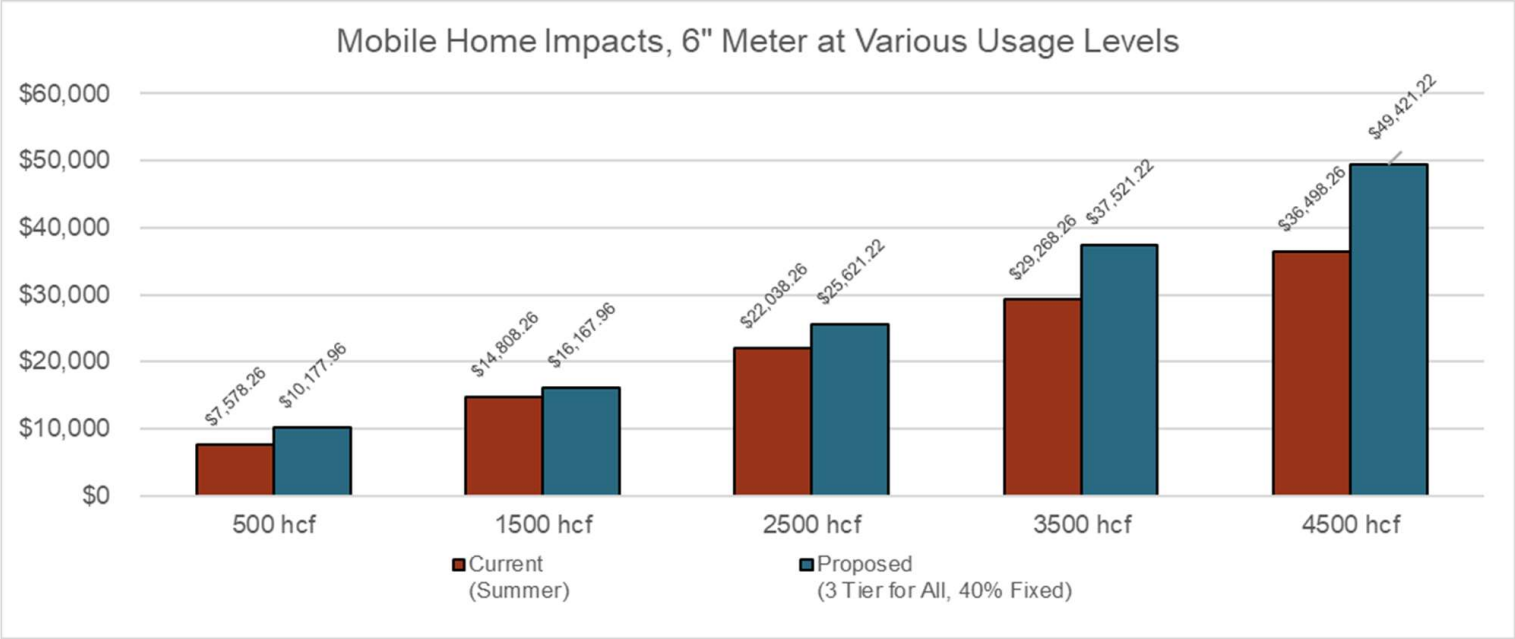
Contacts:

Kevin Kostiuk – 213.262.9309 / kkostiuk@raftelis.com
Jim Armstrong – jarmstrong@raftelis.com

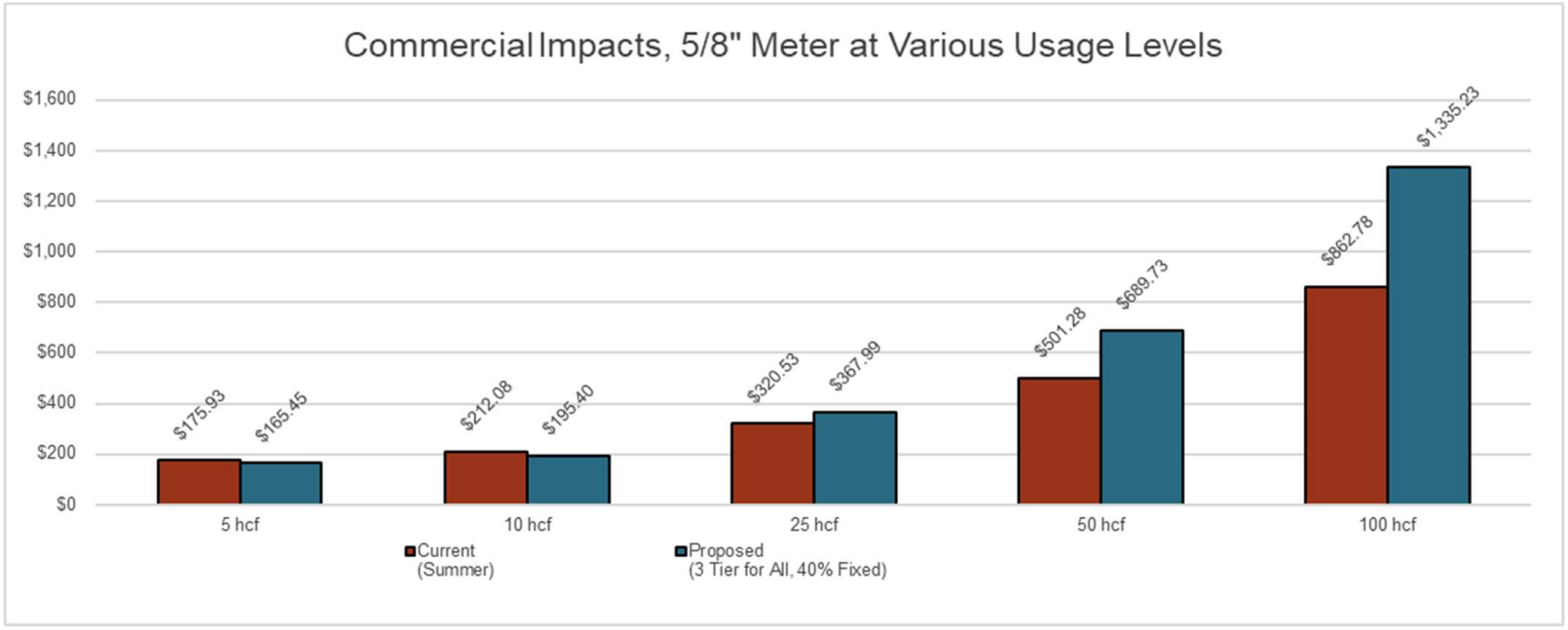
Multi-Family Residential (MFR) Bill Impacts



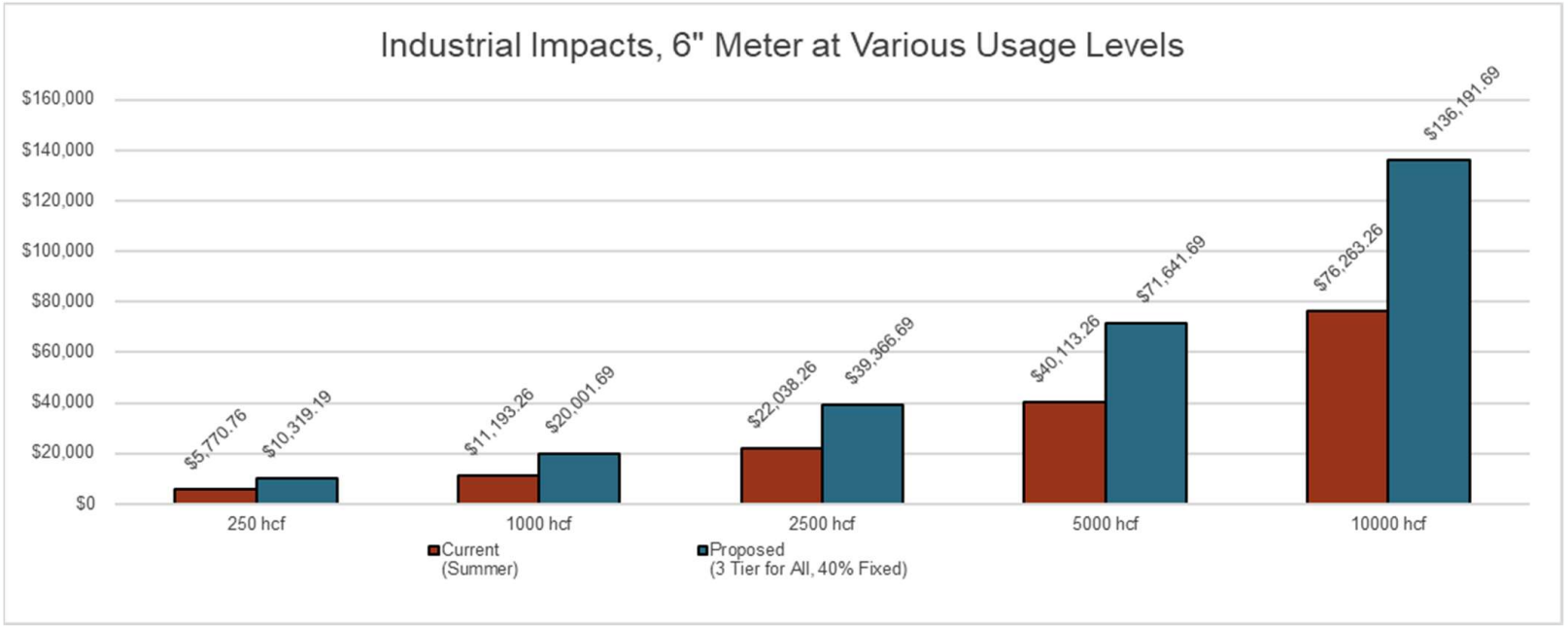
Mobile Home Bill Impacts



Commercial Bill Impacts

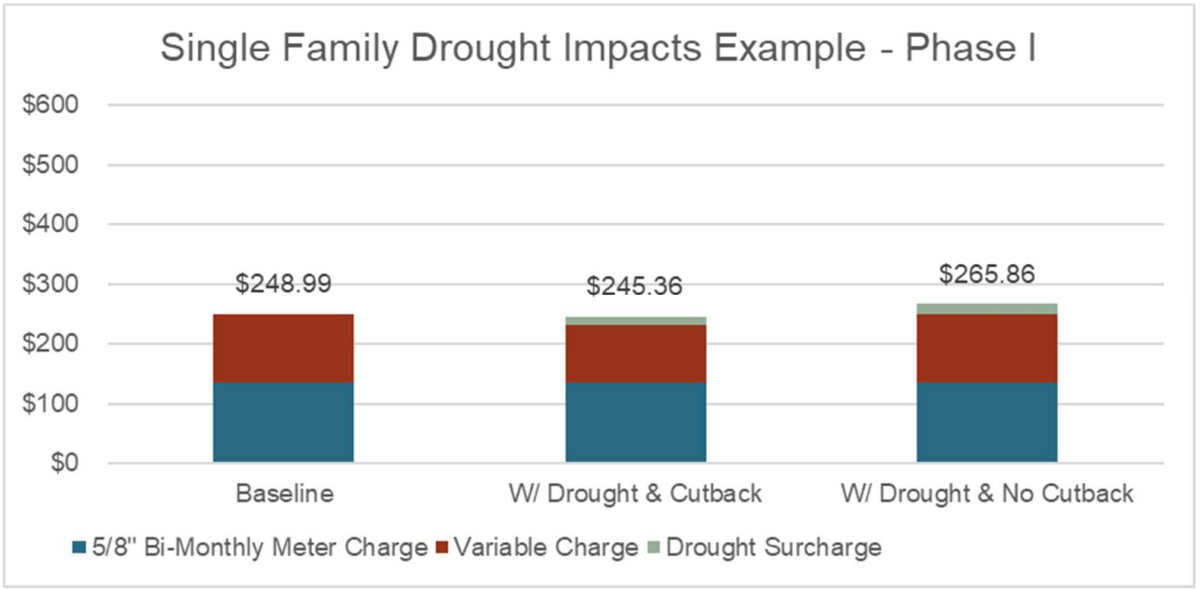


Industrial Bill Impacts



Drought Rate Impacts:

Single Family Residential, 15 HCF



15 HCF is the approximate annual average level of use of the class

Report to the City Council
Regular City Council - 28 Mar 2023

Agenda Section: **OLD BUSINESS**

Subject: **Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan**

CEQA Determination: **Exempt from CEQA pursuant to Section 15262**

Prepared By: Mark Rincon-Ibarra, Public Works Director and City Engineer

Reviewed By: Joseph Leach, Public Works Director and City Engineer

Approved By: Anil Comelo, City Manager

BACKGROUND

Starting August 2018, the City of St. Helena engaged the services of an engineering consultant to update its citywide water, wastewater, and stormwater master utility plans. This was a consolidated effort to update, replace and expand upon prior master plans, studies, and policies, which resulted in the Integrated Utility Master Plan (IUMP). The goal of the IUMP is to have one working document available for the City's utility infrastructure to (1) support residential, commercial, and industrial activities of the City, and (2) efficiently coordinate capital improvement projects.

On March 14, 2018, Public Works released a Request for Proposals (RFP) for an Integrated Utility Master Plan for citywide water, wastewater, and stormwater. During April 2018, Public Works received three proposals from qualified firms. Carollo Engineers, Inc. was selected to prepare the IUMP. Carollo Engineers has significant experience with providing utility master plans for municipalities statewide and brings a range of expertise to the City of St. Helena. Carollo Engineers initiated the updates in August 2018 and completed the IUMP in May 2021.

DISCUSSION

The development of the IUMP required Carollo to work with staff to collect the necessary information to develop the Plan including data collection and background review, technology review, condition assessments, land use analysis, water demand and

wastewater projections, water supply and storage analysis, water and wastewater regulatory review, hydraulic model construction and calibration, existing and future capacity analysis, and project prioritization and CIP development.

On July 30, 2020 (Special City Council Meeting), staff presented and discussed the draft of the Integrated Utility Master Plan Capital Improvement Project (CIP) Findings from Carollo Engineers, Inc. for the Water, Wastewater, and Storm Drain Systems.

The purpose of the IUMP was to update the previous master plans, to conduct an analysis of the City's water supplies, to identify capacity deficiencies in the water, sanitary sewer, and storm drainage systems, to develop feasible alternatives to correct these deficiencies, and to plan infrastructure that will serve future development through the year 2040.

The IUMP acts as a guideline for decisions on setting infrastructure spending priorities for the City's utilities.

The total cost for developing the IUMP, including extra tasks, was $383,605, and was included in the FY2018/2019 budget.

Adoption of the IUMP does not constitute a plan or commitment to fiscally implement any project(s). The total estimated costs in the IUMP for identified water, wastewater, and storm drain projects is $51.7 million over a 20-year period. Of this amount, $22.5 million is prioritized as Phase 1 (first five years targeting highest priority improvements). Of the $22.5 million identified in Phase 1, $3.9 million is for storm water which is supported by the Measure H General Obligation Bond (2022) and Storm Drain Impact fees. The costs for Water and Wastewater projects have limited funding available from Measure H totaling $6.9 million and the remaining costs were provided to Raftelis Financial Consultants, Inc. for consideration in the proposed Water/Wastewater Rate Study presented, and accepted, by City Council on March 14, 2023.

FISCAL IMPACT

There is no fiscal impact associated with this report.

RECOMMENDED ACTION

Receive presentation and adopted the attached Resolution accepting the Integrated Utility Master Plan.

ATTACHMENTS

Attachment 1 - St. Helena_ Resolution Adopting the IUMP
Attachment 2 - IUMP Council Presentation 20230328

CITY OF ST. HELENA

RESOLUTION NO. 2023-

Resolution of the City Council of the City of St. Helena Adopting the Integrated Utility Master Plan

WHEREAS, the City of St. Helena was in need of updating its citywide water, wastewater, and stormwater master utility plans, and

WHEREAS, instead of having multiple master plans, City staff recommended one Integrated Utility Master Plan that will update, replace and expand upon prior plans, studies, and policies; and

WHEREAS, on March 14, 2018, Public Works released a Request for Proposals for Integrated Utility Master Plan for citywide water, wastewater, and stormwater with a deadline to submit of April 24, 2018; and

WHEREAS, on April 24, 2018, the City of St. Helena received three proposals from qualified firms, reviewed the proposals and determined Carollo Engineers proposal was the most responsive for the Integrated Utility Master Plan scope of work; and

WHEREAS, the Integrated Utility Master Plan development started in August 2018, Public Works staff provided input and reviewed the Plan, and has accepted the final draft of the Plan; and

WHEREAS, the Integrated Utility Master Plan is exempt from CEQA under Section 15262, which states a project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an EIR or negative declaration but does require consideration of environmental factors; and

WHEREAS, the final version of the Integrated Utility Master Plan was completed and submitted in May 2021.

NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ST. HELENA AS FOLLOWS:

SECTION 1. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 2. The City Council hereby adopts the Integrated Utility Master Plan and included herein as Attachment 1.

Approved at a Regular Meeting of the St. Helena City Council on March 28, 2023, by the following vote:

Mayor Paul Jaminson Dohring: _____

Vice Mayor Eric Hall: _____

Council Member Anna Chouteau: _____

Council Member Lester Hardy: _____

Council Member Billy Summers: _____

APPROVED: ATTEST:

_____ _____

Paul Jaminson Dohring, Mayor Cindy Tzafopoulos, City Clerk



Integrated Utility Master Plan

Council Adoption

CITY OF ST. HELENA, CA // March 28, 2023

// Meeting objectives are to summarize the system analysis, deficiencies and preliminary capital improvement plan

Agenda Item	Topic
1	Project Objectives
2	Water, Wastewater, and Storm Drain Systems
3	Preliminary Capital Improvement Costs
4	Conclusion
5	Next Steps

Project Objectives

// Project Objectives

- Combine previous individual utility master plans into an all-encompassing master plan
- Evaluate water, wastewater, and storm drain system performance
- Determine existing system deficiencies
- Project future system demands
- Develop projects to address deficiencies
- Develop projects to serve future growth
- Develop estimated capital improvement costs, project phasing, and priorities

Water System Analysis

// Existing Water Distribution System

- 46.7 miles of pipeline
- 1.25 to 24 inches in diameter
- 3 supply sources
  - Bell Canyon Reservoir
  - Napa Intertie/Rutherford Pump Station
  - Stonebridge Wells
- 5 Pressure Zones
- 1.45 mgd Average Day Demand
- 2.63 mgd Max Day Demand



// The City's Average Day Demand (ADD) is 1.45 mgd, and Maximum Day Demand (MDD) is 2.63 mgd

Demand Condition	Demand (mgd)	Peaking Factor
Average Day Demand	1.45	1.00
Maximum Day Demand	2.63	1.81
Peak Hour Demand	4.20	2.90

// Water Distribution System Analysis

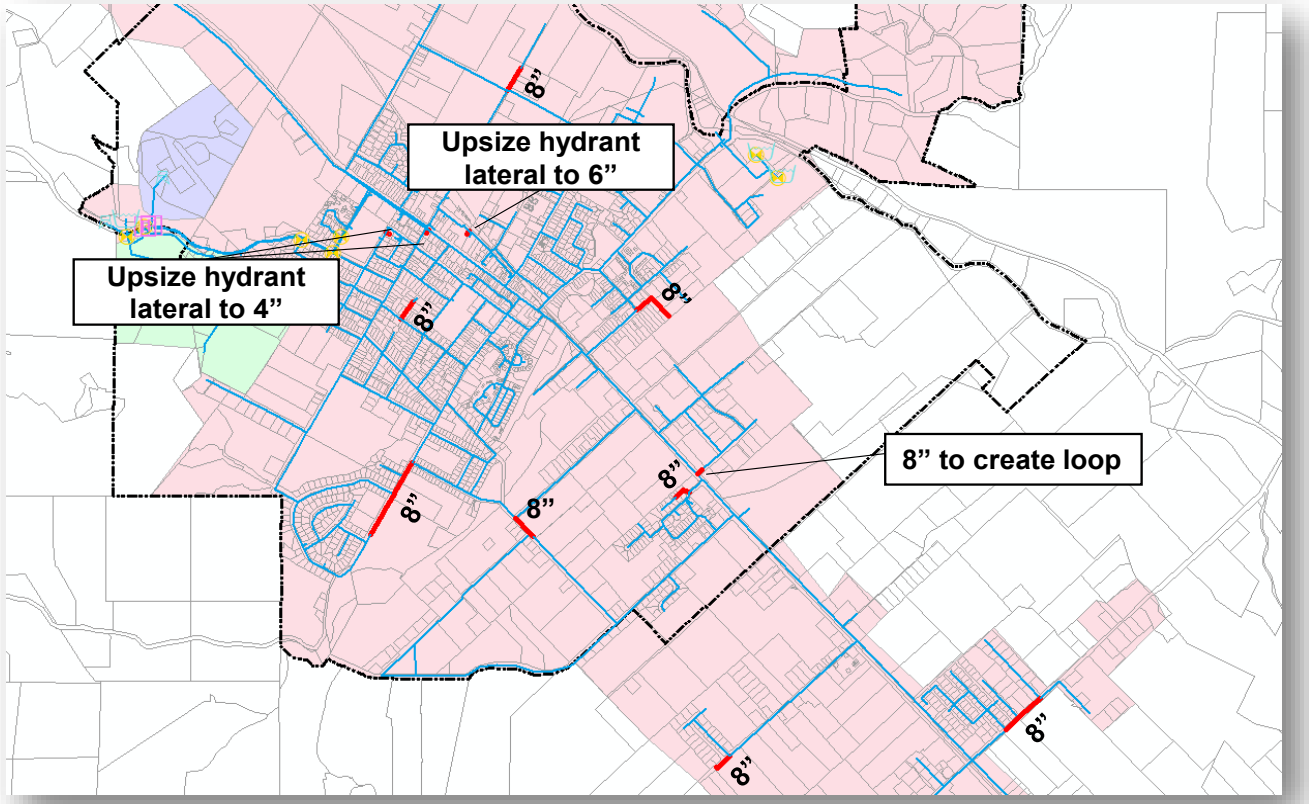
- Water system analysis is based on the following criteria:
  - pressure
  - supply
  - storage
  - velocity



// Water Distribution System Findings

- Existing ADD hydraulic analysis showed that the system generally operates below 120 psi
- Existing PHD analysis showed pressures above 40 psi throughout the system
- Velocity analysis showed isolated capacity restriction with a velocity above 10 ft/s
- The City's four storage reservoirs (total 4.36 MG) overall provide operational equalization storage to meet peak-hour demand, fire flow and emergency storage
  - Currently a city-wide storage capacity surplus of approximately 0.77 MG. Only Zone 3 has a deficit of 0.05 MG (50,000 gallons)
- Fire flow analysis flagged 21 hydrant locations with residual pressures below 20 psi

// 4,900 LF of pipeline upgrades were developed to mitigate remaining deficiencies

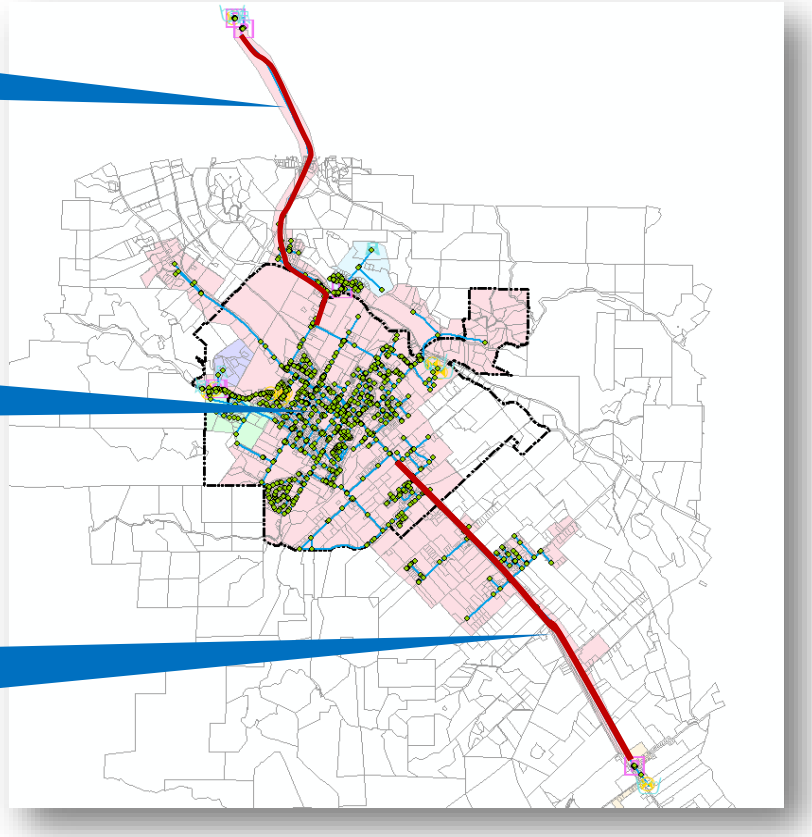


// Additional reliability and resilience recommendations were developed based on risk

WTP Supply Line, 13,300 LF of 14”-24” Main

System-wide Rehabilitation and Replacement

Rutherford Main Replacement, 19,700 LF of 12” Main



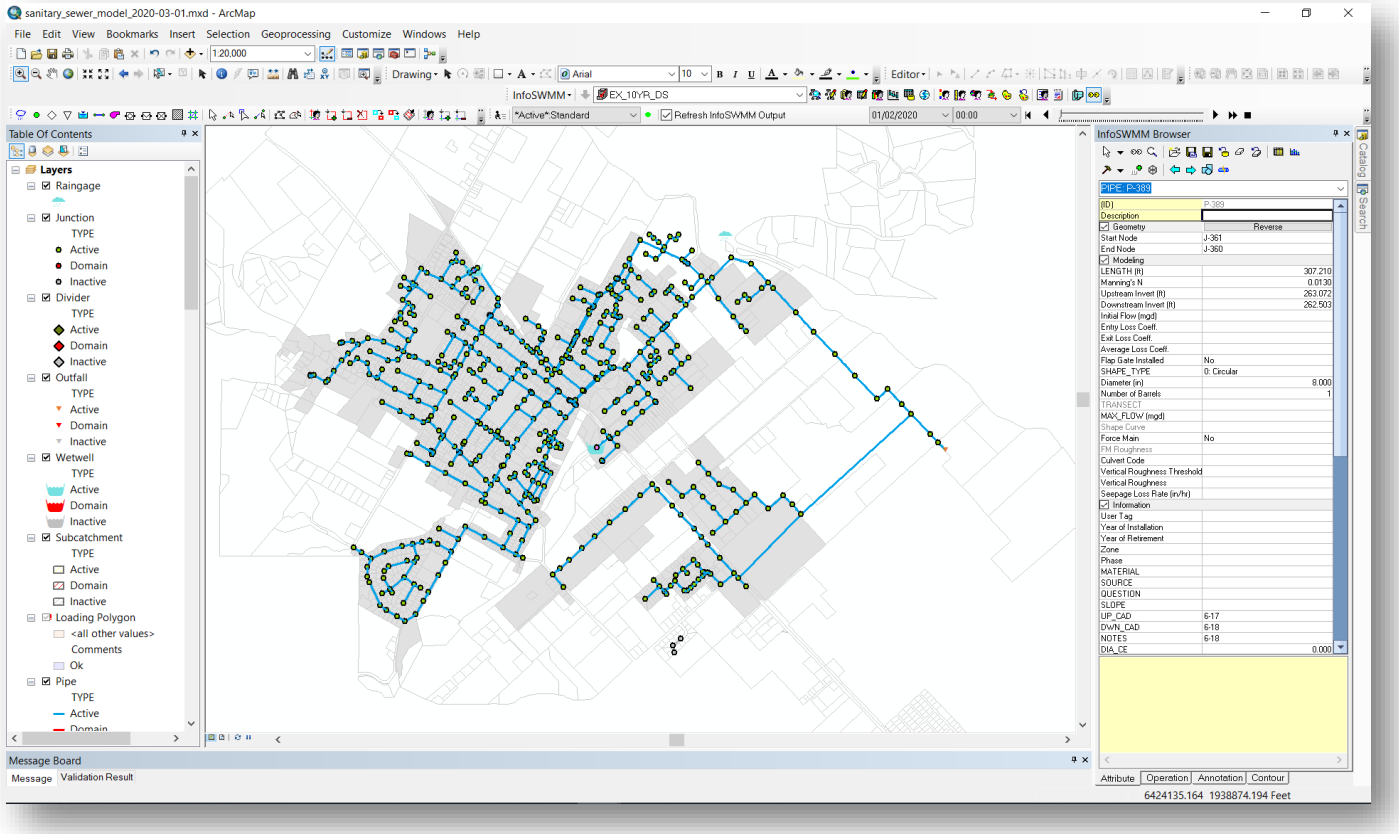
// Preliminary Capital Project Costs

Projects	Description	Total Project Costs (2021) (Million $$)
Hydraulic Constraints	Fire Flow & Lateral Upsize	$0.9
Reliability & Resiliency	Napa Intertie & WTP Transmission Main	$13.6
Rehabilitation & Replacement	Future Pipeline Replacement	$6.8
Total CIP (20-Year)	**Capacity, Condition, and Investigation**	**$21.3**

Wastewater Collection System Analysis

// Existing Wastewater Collection System

- 23.9 miles of pipe
- 4 to 24 inches in diameter
- 0.38 mgd Average Dry Weather Flow
- 5.0 mgd Peak Wet Weather Flow



// Historical ADWF ranged from 0.33 mgd to 0.40 mgd from 2013 to 2018

Year	Average Annual Flow (mgd)	Average Dry Weather Flow[1] (mgd)	Maximum Daily Flow (mgd)	MDF/ADWF Peaking Factor	Annual Rainfall (inches)
2013	0.40	0.38	2.54	6.6	6.0
2014	0.47	0.36	3.00	8.3	29.4
2015	0.38	0.33	1.56	4.6	12.4
2016	0.52[2]	0.33[2]	2.49	7.4	24.1
2017	0.71[3]	0.40[2]	3.78	9.2	36.5
2018	0.43	0.35	1.48	4.2	10.6

Notes:
1. Average Dry Weather Flow is measured using influent data (meter located between influent pump and Pond 1A) from June, July, and August
2. June 2016 data was missing. Averages exclude these days.
3. 14 days in August 2017 were missing data. Averages exclude these days.

// Wastewater Collection System Findings

- Monthly influent flow showed significant wet weather infiltration/inflow in the collection system
- The existing 10-year storm event simulated 5,900 LF of deficient sewers and SSOs at 5 locations
- Condition scores show 1.8 miles with a Structural Peak Score of >= 4 (very poor)
- Existing CCTV inspections (2015) cover ~10 miles of sewer system and needs to include additional older areas of City's system

// Proposed Improvements

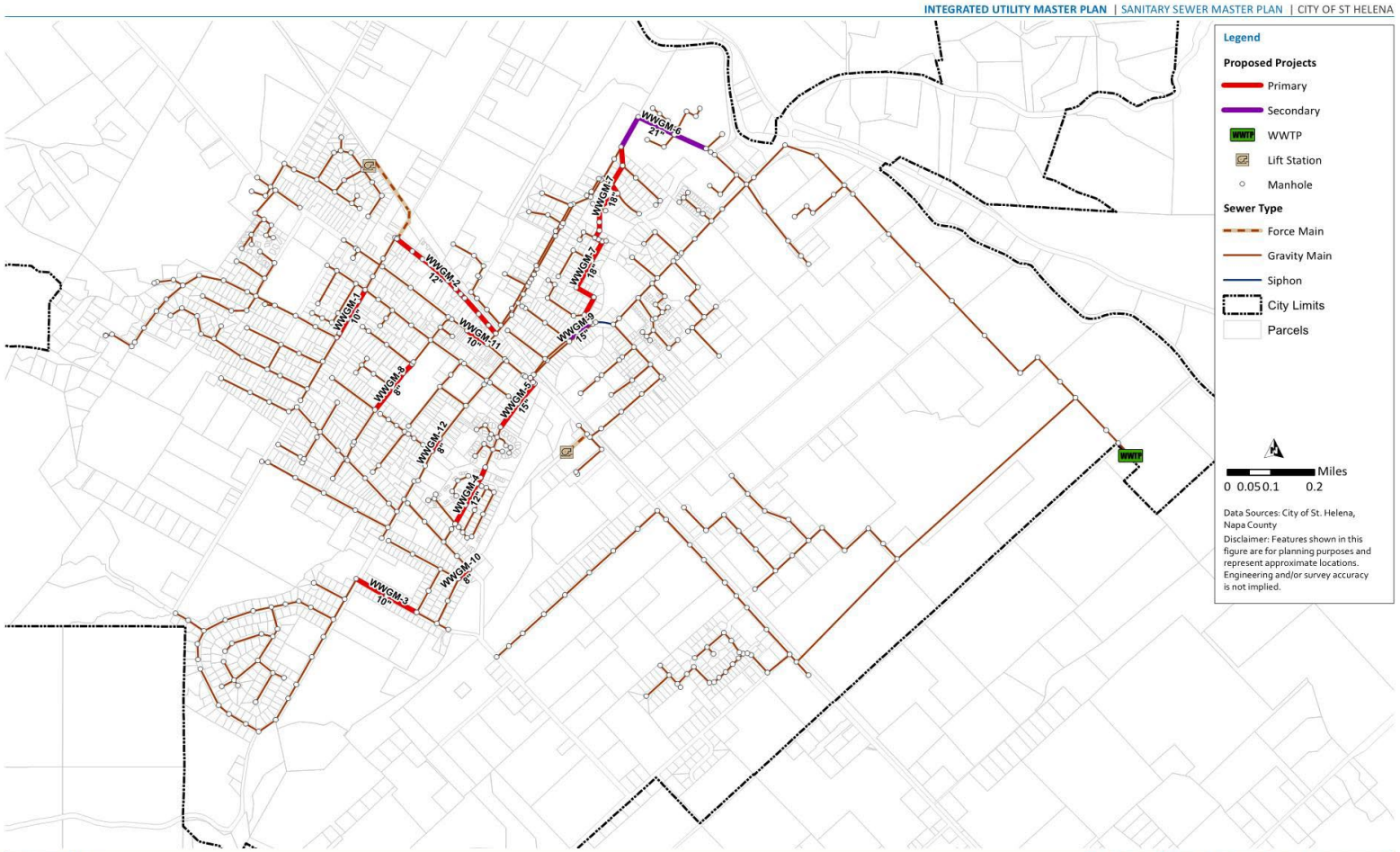


Figure 1 Preliminary Existing Sanitary Sewer Improvements

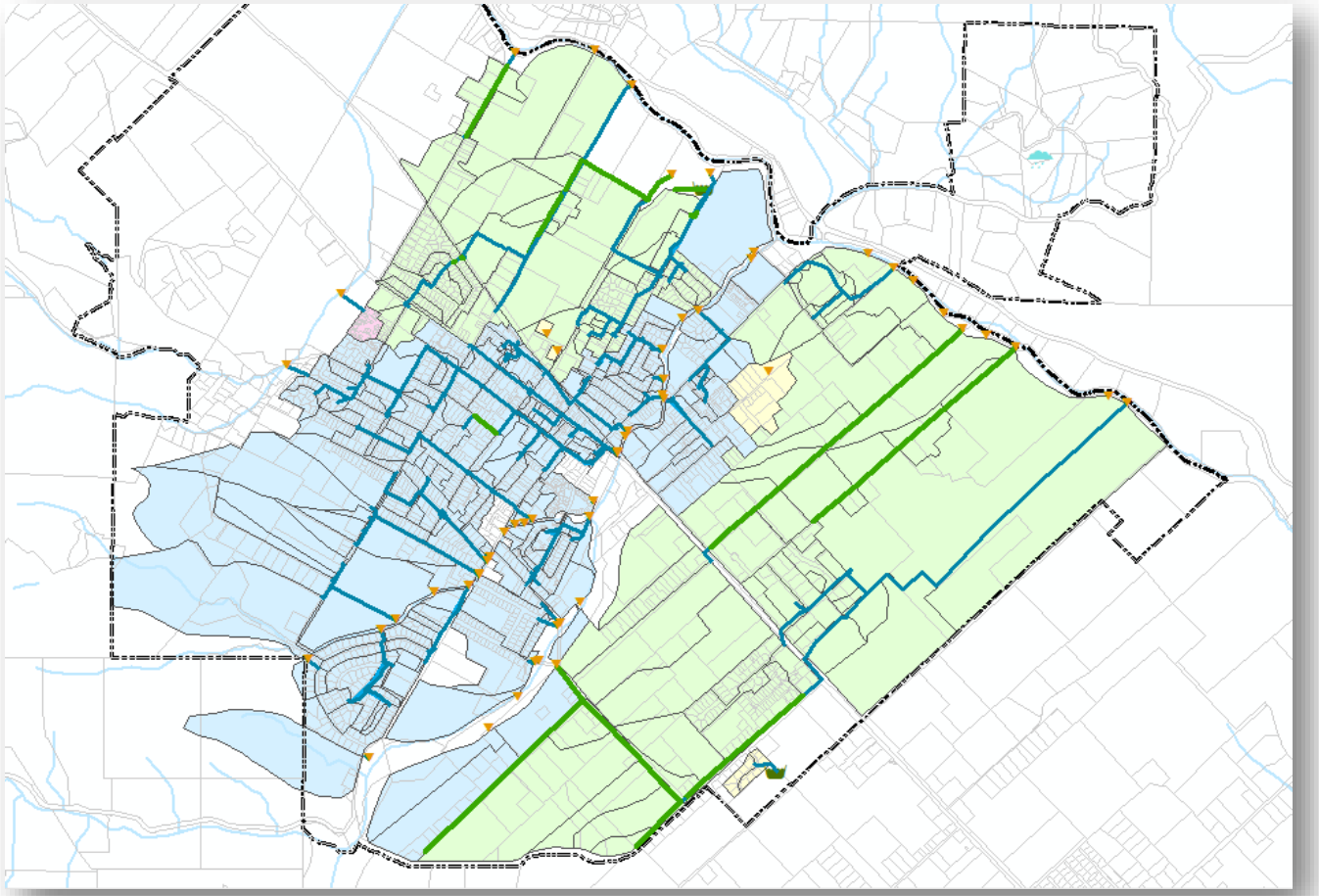
// Preliminary Capital Project Costs

Projects	Description	Total Project Costs (2021) (Million)
Hydraulic Constraints	Capacity Increase (SSO Risk)	$3.9
CCTV Inspection	Phase 1 and Phase 2	$0.88
I/I investigation	Wet Weather Flow Monitoring & Capacity Analysis	$0.11
Phase 1 Rehabilitation	Mitigation of Existing Condition Deficiencies	$2.7
Phase 2 Rehabilitation	Long Term Condition Mitigation	$3.6
Total CIP (20-Year)	Capacity, Condition, and Investigation	$11.2

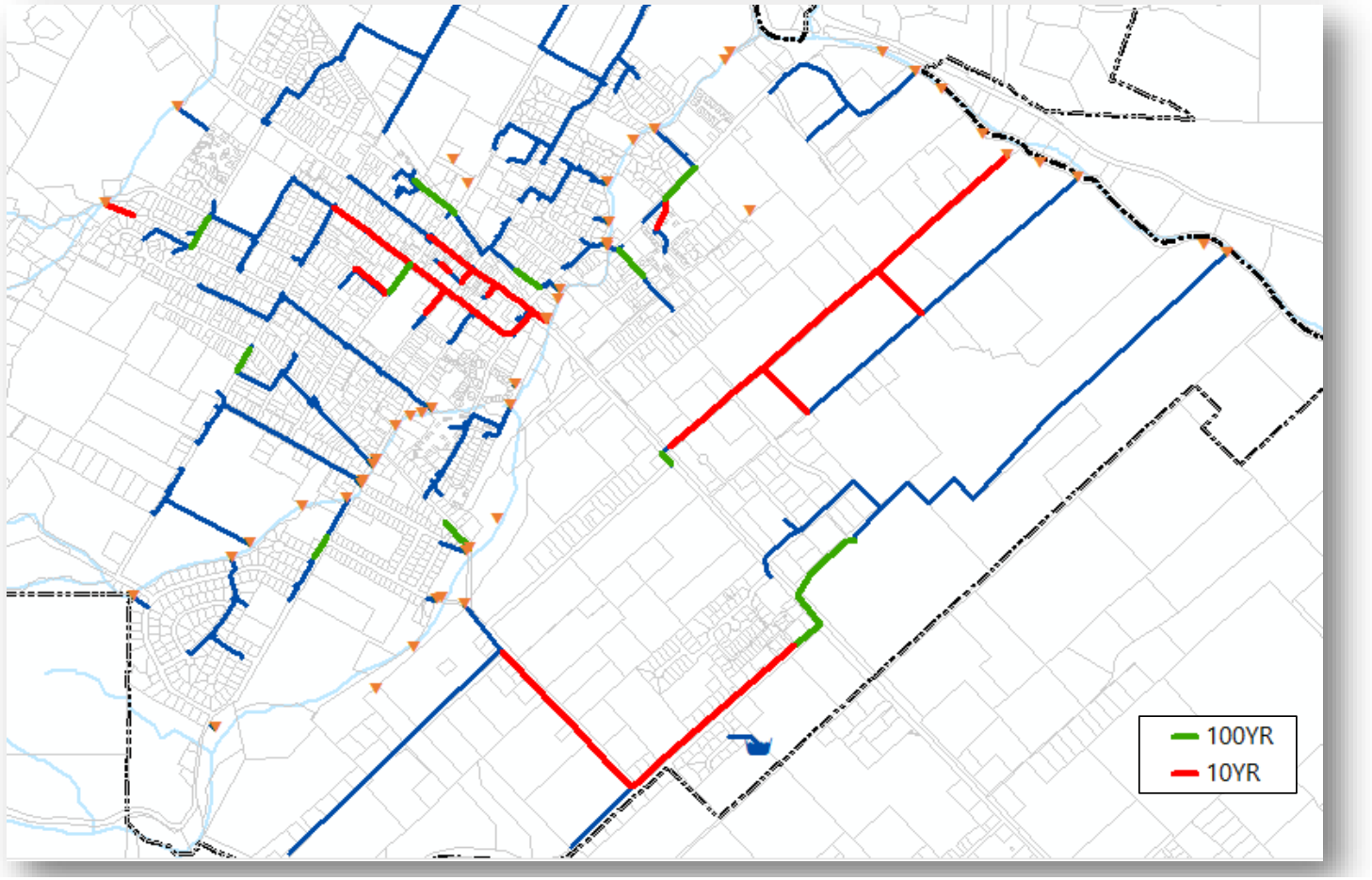
Storm Drainage System Analysis

// Existing Storm Drainage System

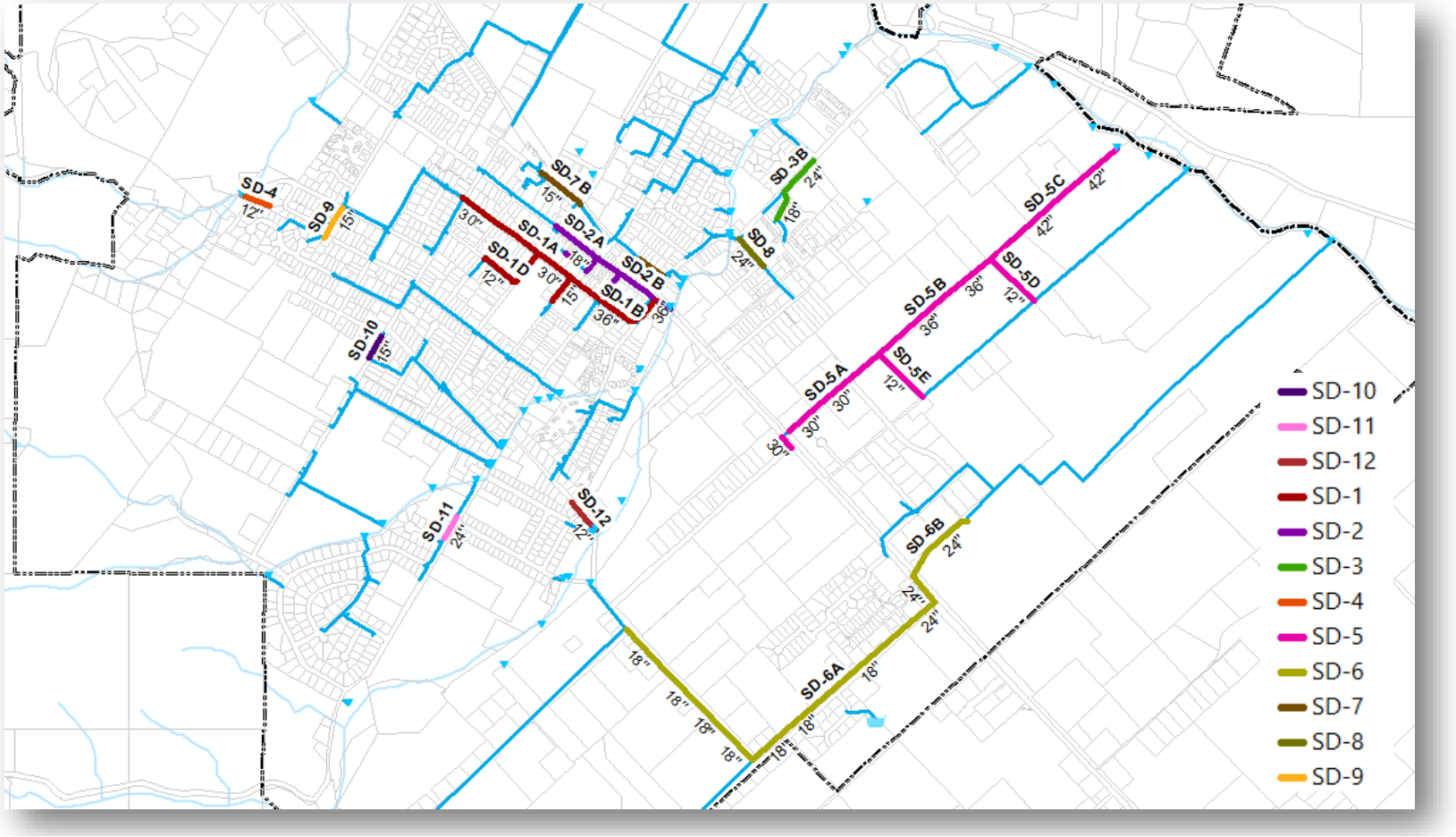
- 13 miles of pipe
- 6 to 60 inches in diameter
- Surface drainage
- Ditch drainage
- Discharge to Napa River



// 17,900 LF of projects were identified for the 10-Year Storm, and 5,300 LF of projects were identified for the 100-Year Storm



// The proposed improvements were broken down into major projects



// Preliminary Capital Project Costs

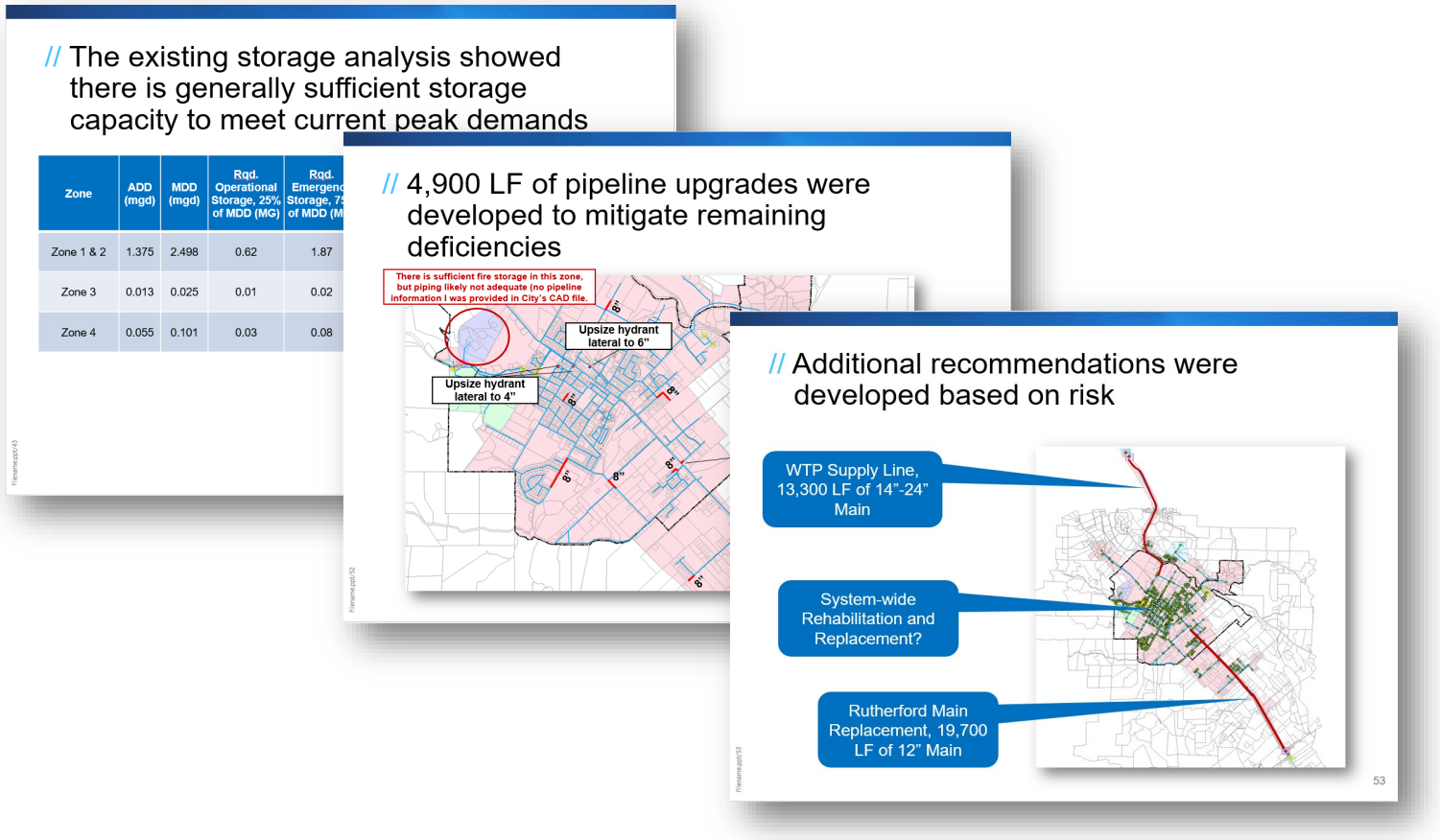
Projects	Description	Total Project Costs (2021) (Million)
Hydraulic Constraints	Drainage Improvements	$11.8
Rehabilitation & Replacement	Short and Long Term Condition Mitigation	$7.4
Total CIP (20-Year)	Capacity, Condition, and Investigation	$19.2

Conclusion

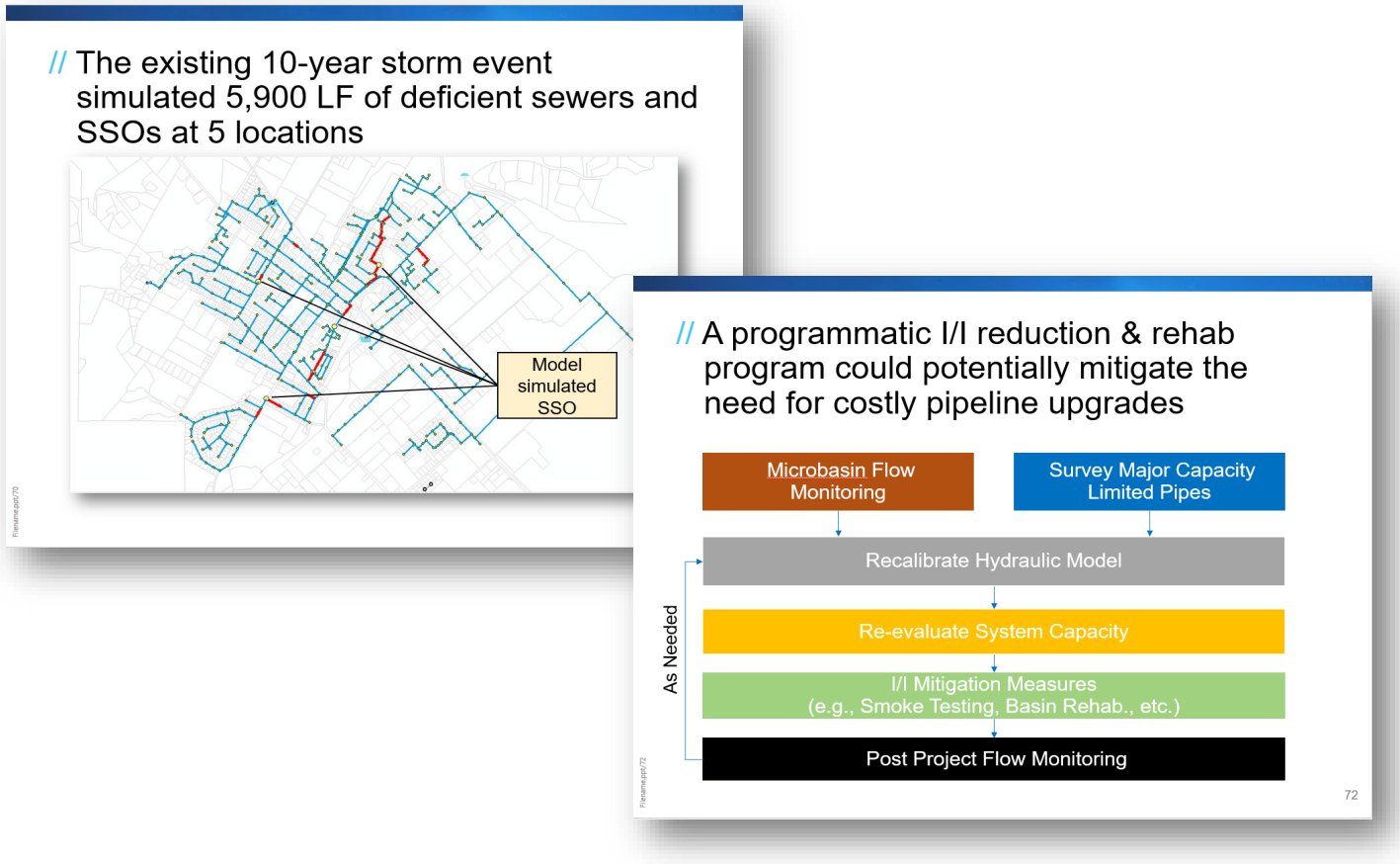
// Overall Capital Improvement Program

System	Phase 1 (2021-2025) $Million	Phase 2 (2026-2030) $Million	Phase 3 (2031-2035) $Million	Phase 4 (2036-2040) $Million
Water System	$13.6	$1.7	$2.5	$2.5
Wastewater Collections	$5.1	$3.9	$1.2	$1.2
Storm Drainage	$3.9	$6.5	$5.8	$3.0
Total CIP	$22.6	$12.1	$5.8	$6.7
$/Year	$4.5	$2.4	$1.2	$1.3

// The existing water system improvements generally include fire flow and risk-based projects



// The existing sewer system showed high rates of I/I with areas of surcharging and SSOs during PWWF conditions



CCTV inspection program needs to include additional older areas of City's system

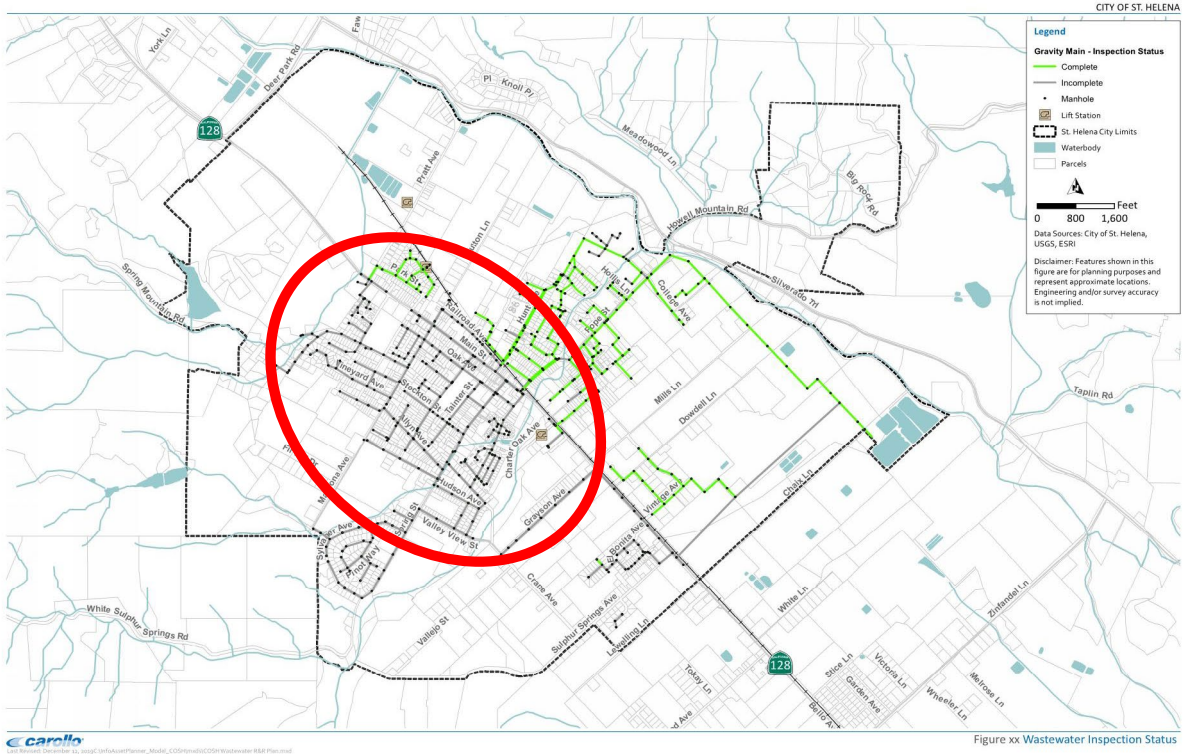
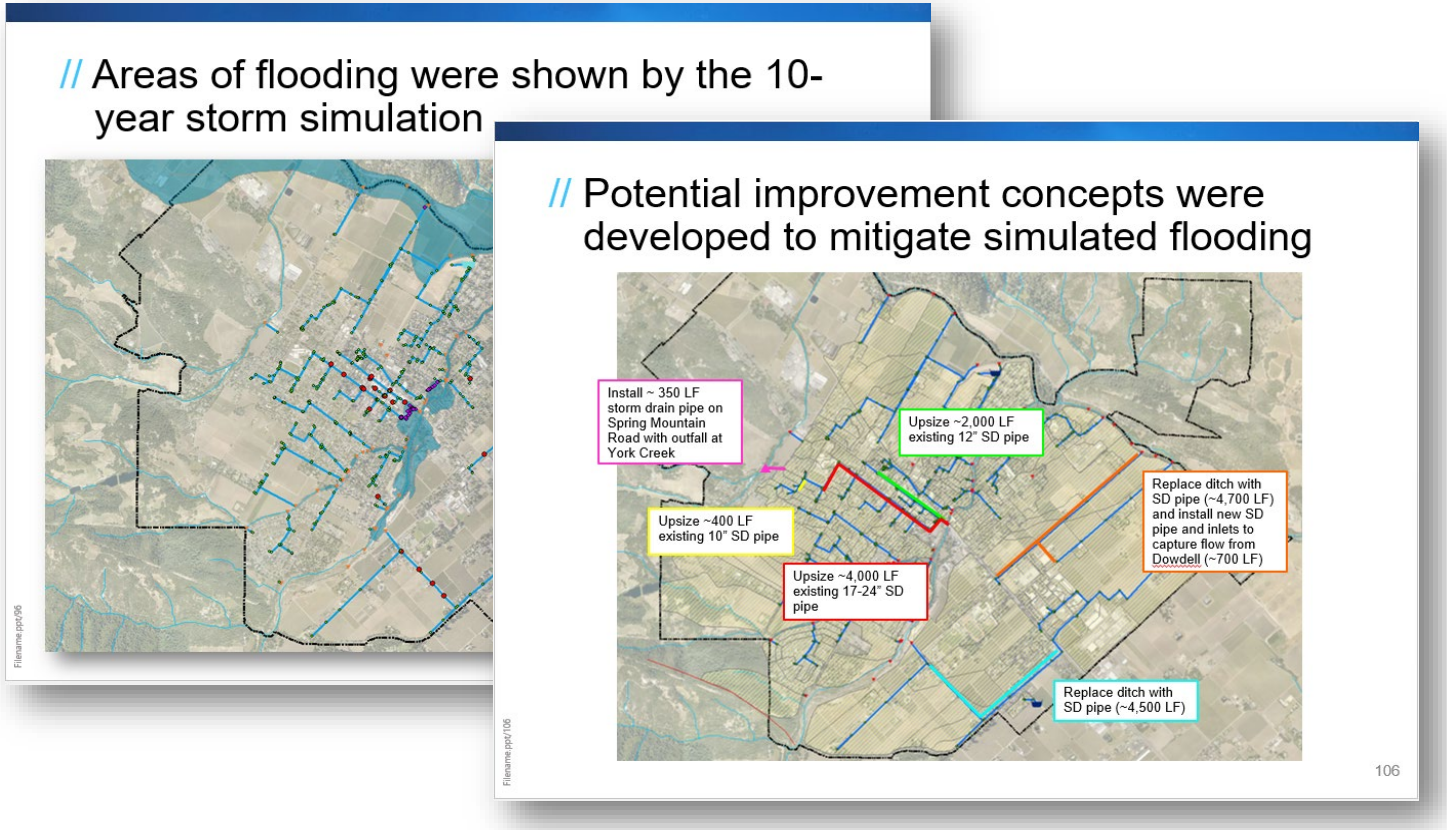


Figure xx Wastewater Inspection Status

Phased CCTV program to inspect remaining 12 miles of sewer. ~$220k

// The existing storm drainage system showed areas of flooding throughout the system



Next Steps

// Next Steps

- Define individual project scopes
- Refine construction cost estimates
- Coordinate with pavement restoration strategies
- Develop project delivery schedule
- Allocate project costs to funding sources
- Secure City Council authorization

Questions?

From: gene@armstead.com
To: Public Comment
Subject: [External] Agenda item 11.1 Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan
Date: Monday, March 27, 2023 2:29:52 PM

Agenda item 11.1 Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan

We live at and own the property at 1800 Main Street, St. Helena.

The Project Objectives as stated in the published presentation include the objectives of determining existing system deficiencies and developing projects to address deficiencies. We believe those particulars are not being fulfilled in that they completely ignore what is at least one significant long-standing deficiency: sanitary sewer service on Main Street.

Looking at the map of the “Existing Wastewater Collection System” (page 404 of 422 in the Council’s packet), one might notice a significant gap in the collection system on Main Street, from Crinella to just north of Elmhurst. A significant number of homes along Main Street are reliant on septic systems because they can’t be connected to the City sanitary sewer. We’re hard pressed to find any other developed area of town with a similar number of homes forced to rely on septic systems when all those around them are connected to the sanitary sewer system.

That’s an obvious deficiency completely ignored by the study. It admittedly is a difficult situation. When the Crinella area was mapped, the City should have required provision for the sanitary sewer to be installed eastward (that is, downhill) from Main Street. It didn’t. But that is not a reason for the City to just pretend the problem doesn’t exist now.

Some forty years ago, our parcel and a contiguous parcel at 1798 Main were one larger parcel. The City approved a lot split creating the two parcels existing today, with a requirement that the two parcels be part of the City’s Sanitary Sewer District. So here we are now, a part of the City’s Sanitary Sewer District with no way to connect to the sanitary sewer system.

We have had multiple conversations with various City staff. In all those conversations staff have been sympathetic and supportive, but no one has yet come up with a solution. We have attempted to find our own solution, but so far, nothing has worked out. We will continue to try to find a solution that will work.

Until there is a solution, this deficiency should be recognized and documented. But for the City to ignore this significant and obvious deficiency is a failure on the part the City.

Gene Armstead
Denise Armstead
1800 Main Street
St. Helena, CA

From:	David Sasson
To:	Public Comment
Cc:	Jaime Sasson
Subject:	[External] Public Comment Re: Agenda Item 11.1 - Integrated Master Utility Plan
Date:	Tuesday, March 28, 2023 9:10:26 AM

03/28/2023

Public Comment Re: Agenda item 11.1 Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan

We live at and own the property at 1810 Main Street, St. Helena.

We were disappointed to have recently reviewed the Project Objectives as stated in the published presentation referenced above, which supposedly include the objectives of determining existing system deficiencies and developing projects to address deficiencies. We feel that a key deficiency to the modern infrastructure of our city remains, and we are writing to ask that you reconsider adding sanitary sewer service on Main Street between Crinella Ct. and Pratt Avenue. Our stretch of homes continues to operate on septic, an antiquated system necessary for homes that are isolated; not for homes that are quite literally on Main Street and quite literally surrounded by city provided sanitary sewer on all sides. We are the ONLY stretch of suburban road that does not have access to modern-day infrastructure in our great city.

Aside from the obvious health and safety issues that exist when you have 20+ homes operating their own septic tank in a downtown area, there are real opportunities for the city to benefit from doing what is right; that is, bringing our town into the 21st century. Personally speaking, with access to sanitary sewer, we would be first in line to connect, creating additional revenue for the city. Additionally, with a footprint of roughly half of our back yard and the limited capacity that comes with running a home on septic, the septic tank creates significant obstacles to capital improvements to our home. With access to city sanitary sewer, we would have the new-found freedom to improve our home, improve our land, and create real additional tax revenue for the city. I know many of my neighbors feel the same way. Unlike every other expenditure in the Integrated Master Utility Plan which would cost the city millions and bring in NO additional tax revenue, this would be an investment in our city and bring in perpetual income for decades to come.

We strongly urge the city to reconsider their plan and allocate funds to improve the city's infrastructure by incorporating sanitary sewer along Main Street from Crinella Ct. to Pratt Street. We believe that you have a duty to your tax-paying residents to do so, and it is win-win.

Sincerely,

Jaime and David Sasson

1810 Main Street, St. Helena, CA

From:	Katie Avery
To:	Public Comment
Subject:	[External] Public Comment Re: Agenda item 11.1 Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan
Date:	Monday, March 27, 2023 10:58:54 PM

Comment regarding agenda item 11.1 Consideration and Proposed Approval of a Resolution Adopting the Integrated Master Utility Plan

The purpose of the IUMP was to update the previous master plans, to conduct an analysis of the City's water supplies, to identify capacity deficiencies in the water, sanitary sewer, and storm drainage systems, to develop feasible alternatives to correct these deficiencies, and to plan infrastructure that will serve future development through the year 2040. The fact that a very obvious deficiency is completely ignored by the study is appalling to me. There are approximately 25 residences along Main St that do not have access to sanitary sewer and nowhere in this plan do I see a project or suggestion to address the sanitary sewer deficiencies that the City of Saint Helena has put on their tax paying residents.

Looking at the map of the "Existing Wastewater Collection System" (page 404 of 422 in the Council's packet), you will notice a significant gap in the collection system on Main Street, from Crinella to just South of Pratt. Further, at least two of the homes in the gap paid the city for access to the sewer system over 10 years ago and still have not been hooked up to city sewer. The city is not honoring their side of the deal, nor has anyone come up with a plan to hook these homes (plus the 23 or so other homes) up to sanitary sewer.

I have spoken at length with Council member Lester Hardy about this situation, along with Mark Rincon-Ibarra, Anil Comelo, Mario Traverso, and Joe Leach. I appreciate the help that I have received from Lester Hardy regarding this dire situation, but I have also had many conversations with those in Management of the Public Works Department and it seems they do not have any interest in working with the residents of Main St to help come up with a solution.

I have had multiple conversations with Mark Rincon-Ibarra and Anil Comelo about giving the city an easement on my own property, which would connect to another city easement, almost guaranteeing that all of the residents on Main St (or a vast majority) would gain access to sewer hookups via the Crinella station. I have offered this easement for FREE to the city, and each time I approach the subject, I get hesitation and denial that it is their problem.

I PLEAD & URGE the City Council to come up with a plan to rectify this issue. The fact that this massive deficiency is not even addressed in the Master Plan, and that there are no alternatives suggested to correct it, nor plans to implement infrastructure that will serve us into the year 2040, has me upset and wondering if this city will ever fix these major issues.

We are in the 21st century, in a wonderful city that we all love. However, it is not safe, or healthy to continue using septic systems in the downtown area and we cannot force residents to continue to use them. The City of Saint Helena Building Department knows this — as it is a requirement to UPGRADE to Sanitary Sewer Services for all new builds or major home renovations.

When the Crinella area was mapped, the City should have required a provision for the sanitary sewer to be installed eastward (that is, downhill) from Main Street. It didn't. But that error in planning is no reason for the City to pretend the problem doesn't exist now. The residents of this area of Main St have offered a solution — an easement on our property located at 1804 Main St. Our property is the only property that abuts to a current City of Saint Helena P.U.E. This could be the solution to a decades old problem but nobody seems to want to have the discussion.

As Gene & Denise Armstead wrote in another letter, they are one of at least two homes (perhaps more) that are now a part of the City's Sanitary Sewer District with no way to connect to the sanitary sewer system. Let's get this fixed and work together.

Until there is a solution, this issue should be recognized, documented and the City Council and Public Works should reach out to the homeowners of Main St who are willing to work with the City of fix this major problem. For the City to ignore this significant and obvious deficiency is a failure on the part the City.

Katie & Jake Avery
1804 Main St
Saint Helena, CA