



**City of St. Helena
Special City Council Meeting
Thursday, July 30, 2020 @ 4:00 PM**

In accordance with Executive Order N-29-20, and guidance from the California Department of Public Health on gatherings, remote public participation is allowed. We will address the Order in the following ways: Members of the public may not physically attend meetings. The City Council meeting will be live-streamed on Comcast Channel 28 and on the City's website, barring technical difficulties. Those members of the public wishing to participate must do so remotely via Zoom electronic meetings in the following ways; by either logging onto the Zoom link located on the meeting agenda (please download the app to your computer or mobile device) and enter the meeting ID or by calling a listed number and enter the meeting ID. Public comment for City Council meetings will be accepted via email to publiccomment@cityofstheleena.org. All public comments must be emailed by 4:00 PM 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.

Please see the end of the agenda for detailed PUBLIC PARTICIPATION instructions.

Please click the link below to join the meeting: <https://us02web.zoom.us/j/81444605082>

Or iPhone one-tap :

US: +12532158782,,81444605082# or +13017158592,,81444605082#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

US: +1 253 215 8782 or +1 301 715 8592 or +1 312 626 6799 or +1 346 248 7799 or +1 669 900 6833 or +1 929 205 6099

Meeting ID: 814 4460 5082

International numbers available: <https://us02web.zoom.us/j/81444605082>

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

Page

1. CALL TO ORDER
2. ROLL CALL
Mayor: Geoff Ellsworth, Vice Mayor: Paul Dohring, City Council Members:
Anna Chouteau, David Knudsen and Mary Koberstein
3. PUBLIC COMMENT:
Under California law, public comments at special meetings are limited to subjects on the agenda only. Therefore public comment will take place during consideration of the item. Each person's comments shall be limited to 4 minutes.
4. NEW BUSINESS

- 4.1. Presentation and Discussion of the Draft Integrated Utility Master Plan Capital Improvement Project (CIP) Findings from Carollo Engineers, Inc. for the Water, Wastewater, and Storm Drain Systems

5 - 70

CEQA Determination: Not a CEQA project

Prepared By: Clayton Church, Public Works Operations Manager, Erica Ahmann Smithies, Public Works Director and City Engineer

Recommendation:

Discuss and receive and file report.

[Staff Report - Pdf](#)

5. ADJOURNMENT

The next Regular City Council meeting is scheduled for August 11, 2020 at 6:00 p.m.

I do hereby certify that a copy of the foregoing agenda was posted on the City website on July 24, 2020.



Cindy Tzaferopoulos, 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.

THE CITY OF ST. HELENA ENCOURAGES ONLINE PUBLIC PARTICIPATION IN VIRTUAL CITY COUNCIL MEETINGS

St. Helena, CA– The City of St. Helena is committed to public participation in City government in a manner that is consistent with guidance provided by the Napa County Public Health Official and Governor Newsom's Executive Order N-25-20. These guidelines relate to social distancing, and are intended to protect everyone by limiting the spread of COVID-19 in our community. In adherence to these guidelines, the St. Helena City Council will host a Virtual Council Meeting on Zoom; a free teleconferencing tool that enables users to watch and/or call into the meeting from their computers or phones. This meeting will be open to public and allows for live public comment. The meeting will also be recorded, livestreamed, and posted on the City's website after the adjournment of the meeting if technical difficulties occur: <https://sthelena.civicweb.net/Portal/>

The ZOOM web link, meeting ID, and phone number will be listed at the top of the City Council Meeting Agenda. You will be required to enter the meeting ID, but there will be no password or participant ID.

How to Watch or Listen to Council Meetings:

1. Watch on Comcast Channel 28
2. Watch the livestreaming video on the City's website
3. Watch and Listen on Zoom.us by clicking on the link in the Council Agenda
4. Listen only by calling the Zoom number listed on the Council Agenda

Watch Council Meeting by Joining the Zoom Meeting:

1. By Computer, Tablet, or Smart Phone:

- a. Before joining the virtual City Council Meeting, it is highly encouraged that you download the Zoom App. To sign up for your own free account, visit zoom.us/signup and enter your email address. You will receive an email from Zoom (no-reply@zoom.us). In this email, click Activate Account.
- b. If you are logged into your account, Enter the **Meeting ID** listed on the City Council Agenda. If you have not created an account go to: <https://zoom.us/join> and enter the **Meeting ID**
- c. Select if you would like to connect audio and/or video and tap **Join Meeting**.
- d. For specific instructions for your device, go to: <https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting>

1. Listen Only by Telephone:

- a. **Dial** the number listed on the Council Agenda.
- b. At the prompt, enter the **Meeting ID** provided on the top of the City Council Meeting Agenda and **Press #. A participate ID is not required.**
- c. To disconnect from the meeting, hang up the phone.

Ways to Provide Public Comment:

While attending the virtual City Council Meeting, the public will have the opportunity to provide live public comment during Public Forum and after each agenda item. When it is the appropriate time for public comment the Mayor will verbally open public comment. At this time each individual is permitted 4 minutes to speak.

1. Send a Public Comment in by 4:00 PM Prior to the Meeting to:
publiccomment@cityofsthelena.org

The easiest way to provide public comment is to email your public comment. Public comments may be emailed to publiccomment@cityofsthelena.org. Please include in the subject line "COMMENT TO COUNCIL and the AGENDA ITEM". Any public comment is required to be submitted no later than 2 hours before the scheduled meeting and will be included as an attachment to the agenda. All public comments will be made publicly available and attached to the agenda item and will not be read out loud. All public comments that are received after 4:00 PM will be attached to the agenda the following day.

2. Provide Comment through Zoom meeting from a computer, tablet, or smart phone

This option allows the public to virtually attend the meeting as a muted 'attendee' with no video or screen sharing capabilities. You will be able to

see and hear those participating in the meeting, but they will not be able to hear you until the host unmutes you.

If you wish to provide public comment during a specific agenda item or during public forum, you can use the **“raise hand”** feature located in the control panel at the bottom of your screen. The icon is a small blue hand. In Windows you can also use the Alt+Y keyboard shortcut to raise or lower your hand. In Mac you can also use the Option+Y keyboard shortcut to raise or lower your hand.

The host will be notified that you've raised your hand and you will be placed in a queue with all incoming requests.

When it is your turn to speak, you will be notified that the host has unmuted you. To be removed from the queue, just click the **‘raise hand’** button again.

3. Call in to the ZOOM meeting from a cell phone or landline phone only

This option allows the member of the public with the opportunity to verbally participate in public comment.

If you wish to speak during public comment time dial ***9** on your telephone.

The host will be notified that you would like to speak and you will be placed in a queue with all incoming requests.

When it is your turn to speak, you will be notified that the host has unmuted you. You may press ***9** again if you wish to be removed from the queue.

You will be notified at the end of your statement that you have been muted.



Report to the City Council
Special City Council - 30 Jul 2020 Underground
Master Plan Workshop

Agenda Section: NEW BUSINESS

Subject: Presentation and Discussion of the Draft Integrated Utility Master Plan Capital Improvement Project (CIP) Findings from Carollo Engineers, Inc. for the Water, Wastewater, and Storm Drain Systems

CEQA Determination: Not a CEQA project

Prepared By: Clayton Church, Public Works Operations Manager, Erica Ahmann Smithies, Public Works Director and City Engineer

Reviewed By: April Mitts, Finance Director

Approved By: Mark T. Prestwich, City Manager

BACKGROUND

The City of St. Helena is in need of updating its citywide water, wastewater, and storm water master utility plans. Recognizing this need, on March 14, 2018, the City's Public Works Department released a Request for Proposals (RFP) for an Integrated Utility Master Plan (Plan) which would update, replace, and expand upon prior plans, studies, and policies. The goal of this Plan is to have one working document available for the City's infrastructure to (1) support residential, commercial, and industrial activities of the City and (2) have the ability to efficiently coordinate Capital Improvement Projects (CIP).

On August 14, 2018, City Council awarded a Professional Services Agreement to Carollo Engineers, Inc. in the amount of \$383,605 for development of the Integrated Utility Master Plan. Overall project objectives include (1) evaluating the water, wastewater, and storm drain system performance, (2) determining existing system deficiencies, (3) projecting future system demands and wastewater flows, (4) developing projects to serve future growth, and (5) developing estimated capital improvement costs, project phasing, and priorities.

Over the past two years Carollo has been working with City 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.

DISCUSSION

Information presented provides an update of Carollo findings and preliminary estimated costs to address system needs and deficiencies.

Water Distribution System

The City's existing water distribution system consists of 46.7 miles of pipeline with pipes which are between 1.25 to 24 inches in diameter. The system has three supply sources: Louis Stralla Water Treatment Plant, Napa Connection, and Stonebridge Wells. There are five pressure zones and a 1.45 Millions Gallons per Day (MGD) average day demand with a maximum MGD demand of 2.63. The overall water system analysis criteria is based on pressure, supply, storage, and velocity.

To address deficiencies in the existing system which include hydraulic constraints, reliability and resiliency, and rehabilitation and replacement, the preliminary total CIP (20-year) cost is estimated at \$21.3 million, which is broken down into four conceptual phases over a 20-year period. These phases are detailed in Attachment 1 and Attachment 4, page 17.

Wastewater Collection System Analysis

The City's existing wastewater collection system consists of 23.9 miles of pipeline with pipes which are between 4 to 24 inches in diameter. The system has 0.38 MGD Average Dry Weather Flow (ADWF) and 5 MGD Peak Wet Weather Flow (PWWF). The overall system performance is measured against allowable flow depth criteria.

To address deficiencies in the existing system which include hydraulic constraints, further Closed Circuit Television (CCTV) inspection, Wet Weather Flow Monitoring and Capacity Analysis, and rehabilitation, the preliminary total CIP (20-year) cost is estimated at \$11.2 million, which is broken down into four conceptual phases over a 20-year period. These phases are detailed in Attachment 2 and Attachment 4, page 32.

Storm Drainage System Analysis

The City's existing storm drainage system consists of 13 miles of pipe which range from 40 to 60 inches in diameter. In addition, there is surface drainage, ditch drainage, and discharge to the Napa River.

To address deficiencies in the existing system which include hydraulic constraints and rehabilitation and replacement, the preliminary total CIP (20-year) cost is estimated at

\$19.2 million, which is broken down into four conceptual phases over a 20-year period. These phases are detailed in Attachment 3 and Attachment 4, page 51.

Estimated CIP Costs

Each CIP Plan summary (water, wastewater, and storm drain) includes CIP cost estimates. The estimated construction costs are based on the Engineering News-Record (ENR) City Average Construction Cost Index for April 2020 and includes a 30% contingency of the baseline construction cost. The total project costs includes a 10% markup for engineering, a 10% markup for construction management, and includes a 7.5% markup for project administration on the estimated construction costs. The total mark-up is 65.8% of the baseline construction costs.

In comparing the preliminary report from Carollo with the current CIP list, there are only two projects which are included in the current CIP list.

1. The first project is City CIP No. S18-73 Flow Monitoring Program with an budget of \$50,000. The Carollo report designates this at Project No. WWRR-2 with an estimated cost of \$60,000.
2. The second project is CIP No. R20-02 Mills Lane Storm Drain Project with a budget of \$200,000 which is for design and environmental only. The Carollo report designates this project as Project No. SD-5A through SD-5F with a total construction cost of \$1,856,750.

Similar to the report presented by EMG on the condition of City facilities, the Integrated Master Utility Plan is being developed to show the current condition of the three systems to assist the City in making future strategic decisions on replacement of critical City infrastructure.

Given the scale and projected cost of system deficiencies and future needs, it will be necessary to further prioritize system improvements, as the monetary extent of system needs were not considered in the current utility rate structure and likely exceeds the overall ability for City ratepayers to absorb these expenses in future rate studies. In addition to further prioritizing system improvements, the scale and cost of needs demands the City consider other funding strategies including grants, project specific state/federal appropriations, private/public partnerships, etc.

FISCAL IMPACT

The total estimated cost for the 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. The current water and wastewater rate structures do not support or include the identified projects. Of the \$22.5 million identified in Phase 1, \$3.9 million is for storm water which is supported by the General Fund and Storm Drain Impact fees.

The draft project list has been provided to Willdan for consideration in the Impact Fee study currently under way.

RECOMMENDED ACTION

Discuss and receive and file report.

ATTACHMENTS

[Attachment 1 - St Helena CIP - Potable Water 6152020 \(003\)](#)

[Attachment 2 - St Helen CIP - Sewer 6152020 \(003\)](#)

[Attachment 3 - St Helena CIP - Storm 6172020 \(002\)](#)

[Attachment 4 - Carollo Preliminary Report Powerpoint Presentation](#)

DRAFT - WORK IN PROGRESS (June 15, 2020)



City of St Helena
Integrated Utility Master Plan



POTABLE WATER CAPITAL IMPROVEMENT PLAN SUMMARY

Project Name and Description	Existing Size/Type	Proposed Size (inches)	Proposed Amount (LF)	CIP Cost Estimate ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾ (\$)	Phase 1 (2021-2025)	Phase 2 (2026-2030)	Phase 3 (2031-2035)	Phase 4 (2036-2040)
PWTM-1 Napa Intertie Transmission Main	12	12	19,728	\$ 5,722,000	\$ 5,722,000			
PWTM-2 WTP Transmission Main	14	14	2,100	\$ 7,906,000	\$ 7,906,000			
PWFF-1 Zinfandel Ln Fireflow Improvement	4	8	760	\$ 148,000		\$ 148,000		
PWFF-2 Inglewood Ave Fireflow Improvement	2	8	290	\$ 56,000		\$ 56,000		
PWFF-3 Vintage Ave Loop	--	8	100	\$ 20,000		\$ 20,000		
PWFF-4 El Bonita Ave Fireflow	2	8	263	\$ 51,000		\$ 51,000		
PWFF-5 Charter Oak Fireflow	2	8	405	\$ 78,000		\$ 78,000		
PWFF-6 Crane Fireflow	6	8	730	\$ 141,000		\$ 141,000		
PWFF-7 Spring St Fireflow	6	8	1,370	\$ 265,000		\$ 265,000		
PWFF-8 Pine St Fireflow	4	8	345	\$ 66,000		\$ 66,000		
PWFF-9 Fulton Ln Fireflow	2	8	440	\$ 85,000		\$ 85,000		
PWFF-10 6" Hydrant Lateral Upsize	2	6	75	\$ 12,000		\$ 12,000		
PWFF-11 4" Hydrant Lateral Upgrades	2	4	150	\$ 15,000		\$ 15,000		
PWRR-1 Future Allowance for Pipeline R/R	8	8	34,800	\$ 6,749,000		\$ 1,687,250	\$ 2,530,875	\$ 2,530,875
CIP Total				\$ 21,314,000	\$ 13,628,000	\$ 2,624,250	\$ 2,530,875	\$ 2,530,875

Notes:

- (1) ENR 20 City Average Construction Cost Index for March 2020 is 11,397.
- (2) Estimated Construction Cost includes a 30% contingency of the baseline construction cost.
- (3) Total project costs includes a 10% markup for engineering, a 10% markup for construction management and a 7.5% markup for project administration of the estimated construction cost.
- (4) Total Mark-Up is 65.8% of the baseline construction costs.



SEWER SYSTEM CAPITAL IMPROVEMENT PLAN SUMMARY

Project	Existing Size/Type	Proposed Size/Type	Proposed Amount	CIP Cost Estimate ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾ (\$)	Phase 1 (2021-2025)	Phase 2 (2026-2030)	Phase 3 (2031- 2035)	Phase 4 (2036-2040)
WWGM-1 Madrona Avenue	6	10	690	\$ 201,000	\$ 201,000			
WWGM-2 Railroad Avenue	8	12	1,670	\$ 512,000		\$ 512,000		
WWGM-3 Valley View Street	6	10	840	\$ 244,000		\$ 244,000		
WWGM-4 Mitchell Drive	8	12	800	\$ 245,000		\$ 245,000		
WWGM-5 Mitchell Drive & Main Street	8	15	770	\$ 255,000		\$ 255,000		
WWGM-6 Del Campo Court	15 & 18	21	1,360	\$ 608,000	\$ 608,000			
WWGM-7 Signorelli Circle	10 & 12	18	2,590	\$ 923,000	\$ 923,000			
WWGM-8 Adams Street	4	8	730	\$ 206,000		\$ 206,000		
WWGM-9 Pope Street	8 & 10	15	710	\$ 235,000	\$ 235,000			
WWGM-10 Birch Avenue	6	8	1,370	\$ 386,000		\$ 386,000		
WWGM-11 Main Street	6	10	300	\$ 88,000		\$ 88,000		
WWGM-12 Spring Street	4	8	190	\$ 53,000		\$ 53,000		
WWRR-1 CCTV Inspection Program, 1st Phase	--	--	63,360	\$ 222,000	\$ 222,000			
WWRR-2 Flow Monitoring Program	--	--	--	\$ 60,000	\$ 60,000			
WWRR-3 High Priority Pipeline Replacement	8	8	9,504	\$ 2,679,000	\$ 2,679,000			
WWRR-4 Model Update and System Analysis	--	--	--	\$ 50,000	\$ 50,000			
WWRR-5 CCTV Inspection, Phase 2	8	8	187,704	\$ 657,000		\$ 657,000		
WWRR-6 Address R/R Needs from Phase 1 CCTV Program	8	8	12,672	\$ 3,570,000		\$ 1,190,000	\$ 1,190,000	\$ 1,190,000
CIP Total				\$ 11,194,000	\$ 4,978,000	\$ 3,836,000	\$ 1,190,000	\$ 1,190,000

Notes:

- (1) ENR 20 City Average Construction Cost Index for April 2020 is 11,413.
- (2) Estimated Construction Cost includes a 30% contingency of the baseline construction cost.
- (3) Total project costs includes a 10% markup for engineering, a 10% markup for construction management and a 7.5% markup for project administration of the estimated construction cost.
- (4) Total Mark-Up is 65.8% of the baseline construction costs.



STORM DRAINAGE CAPITAL IMPROVEMENT PLAN SUMMARY

Project		Existing Size/Type	Proposed Size/Type	Proposed Amount	CIP Cost Estimate ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾ (\$)	Existing User Cost (\$)	Future User Cost (\$)	Phase 1 (2021-2025)	Phase 2 (2026-2030)	Phase 3 (2031-2035)	Phase 4 (2036-2040)
SD-1A	Oak Ave SD	17-24	30	1,880	\$ 1,154,000	\$ -	\$ 1,154,000	\$ 1,154,000			
SD-1B	Oak Ave SD	24	36	980	\$ 756,000	\$ -	\$ 756,000	\$ 756,000			
SD-1C	Tainter St SD	10	15	330	\$ 109,000	\$ -	\$ 109,000	\$ 109,000			
SD-1D	Kearney St SD	--	12	430	\$ 133,000	\$ -	\$ 133,000	\$ 133,000			
SD-1E	Adams St SD	12	18	390	\$ 139,000	\$ -	\$ 139,000	\$ 139,000			
SD-2A	Main St SD	12	18	590	\$ 211,000	\$ -	\$ 211,000	\$ 211,000			
SD-2B	Main St SD	12-15	24	960	\$ 469,000	\$ -	\$ 469,000	\$ 469,000			
SD-2C	Spring St SD	6	12	130	\$ 40,000	\$ -	\$ 40,000	\$ 40,000			
SD-2D	Hunt Ave SD	6	15	170	\$ 56,000	\$ -	\$ 56,000	\$ 56,000			
SD-2E	Money Way SD	4	12	140	\$ 43,000	\$ -	\$ 43,000	\$ 43,000			
SD-3A	Pope St SD	12	18	340	\$ 121,000	\$ -	\$ 121,000				\$ 121,000
SD-3B	Pope St SD	18	24	470	\$ 230,000	\$ -	\$ 230,000				\$ 230,000
SD-4	Spring Mountain SD	--	12	320	\$ 98,000	\$ -	\$ 98,000				\$ 98,000
SD-5A	Mills Ln SD	--	30	1,710	\$ 1,049,000	\$ -	\$ 1,049,000		\$ 1,049,000		
SD-5B	Mills Ln SD	--	36	1,860	\$ 1,434,000	\$ -	\$ 1,434,000		\$ 1,434,000		
SD-5C	Mills Ln SD	--	42	1,960	\$ 1,787,000	\$ -	\$ 1,787,000		\$ 1,787,000		
SD-5D	Mills Ln Lateral SD	--	12	670	\$ 206,000	\$ -	\$ 206,000		\$ 206,000		
SD-5E	Mills Ln Lateral SD	--	12	680	\$ 209,000	\$ -	\$ 209,000		\$ 98,000		
SD-5F	Mills Ln/Main SD	18	30	160	\$ 98,000	\$ -	\$ 98,000		\$ 98,000		
SD-6A	Crane/Sulphur Springs SD	--	18	4,770	\$ 1,701,000	\$ -	\$ 1,701,000			\$ 1,701,000	
SD-6B	Main St/Vintage SD	--	24	1,610	\$ 787,000	\$ -	\$ 787,000			\$ 787,000	
SD-7A	Church SD	--	24	320	\$ 156,000	\$ -	\$ 156,000			\$ 156,000	
SD-7B	Railroad Ave SD	--	15	560	\$ 186,000	\$ -	\$ 186,000			\$ 186,000	
SD-8	Allison Ave SD	18	24	390	\$ 191,000	\$ -	\$ 191,000				\$ 191,000
SD-9	Elmhurst Ave SD	10	15	380	\$ 126,000	\$ -	\$ 126,000				\$ 126,000
SD-10	Madrona Ave SD	12	15	280	\$ 93,000	\$ -	\$ 93,000				\$ 93,000
SD-11	Spring St SD	15	24	270	\$ 133,000	\$ -	\$ 133,000				\$ 133,000
SD-12	Crane Ave SD	15	12	410	\$ 126,000	\$ -	\$ 126,000				\$ 126,000
SDRR-1	Storm Drain Rehabilitation and Replacement	15	24	15,191	\$ 7,427,000	\$ -	\$ 7,427,000	\$ 742,700	\$ 1,856,750	\$ 2,970,800	\$ 1,856,750
CIP Total					\$ 19,268,000	\$ -	\$ 19,268,000	\$ 3,852,700	\$ 6,528,750	\$ 5,800,800	\$ 2,974,750

Notes:

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- (2) Estimated Construction Cost includes a 30% contingency of the baseline construction cost.
- (3) Total project costs includes a 10% markup for engineering, a 10% markup for construction management and a 7.5% markup for project administration of the estimated construction cost.
- (4) Total Mark-Up is 65.8% of the baseline construction costs.

						HIDE	HIDE	HIDE	HIDE	HIDE		
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CIP Phasing (\$)											
Near-Term											Long-Term
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2024-2028	2031-40
\$ 1,154,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 756,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 109,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 133,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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\$ 211,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 469,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 40,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 56,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 43,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 121,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 230,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 98,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 1,049,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 1,434,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 1,787,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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\$ 209,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 98,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 1,701,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 787,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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\$ 186,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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\$ 93,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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Integrated Utility Master Plan

Council Update

CITY OF ST. HELENA, CA // July 30th, 2020

// 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	Summary of Findings
5	Next Steps

Project Objectives

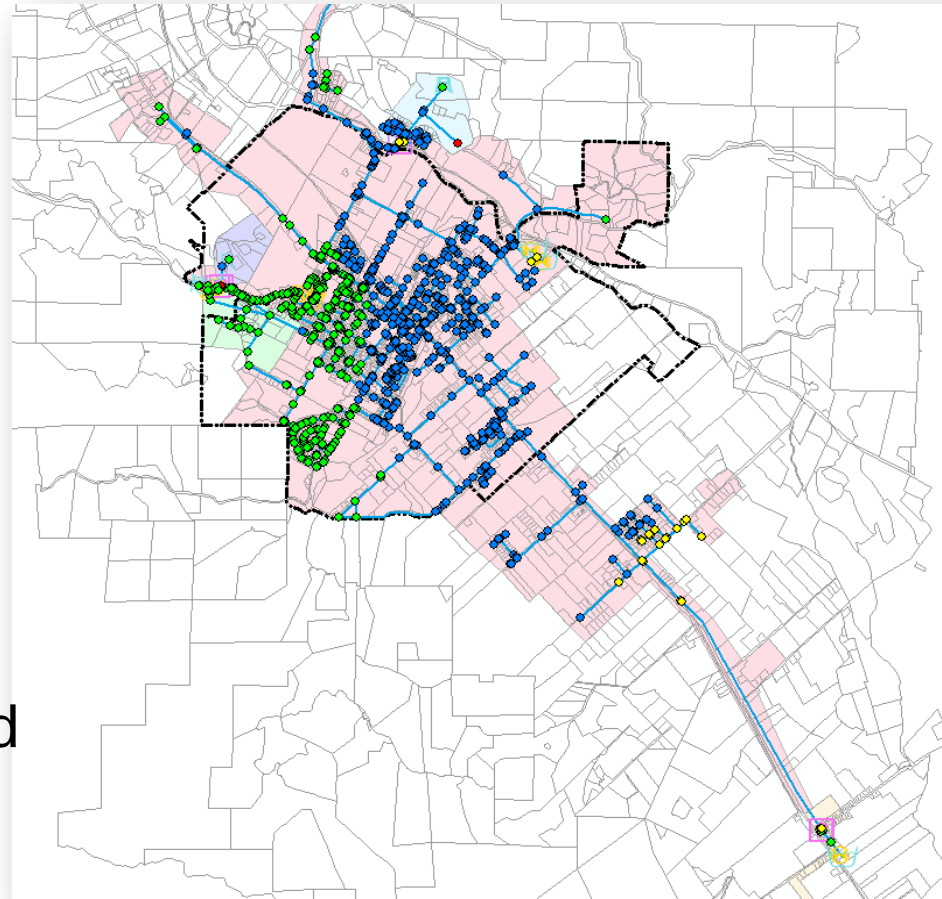
// Project Objectives

- Evaluate water, wastewater, and storm drain system performance
- Determine existing system deficiencies
- Project future system demands and wastewater flows
- 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
 - Louis Stralla WTP
 - Napa Connection
 - 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

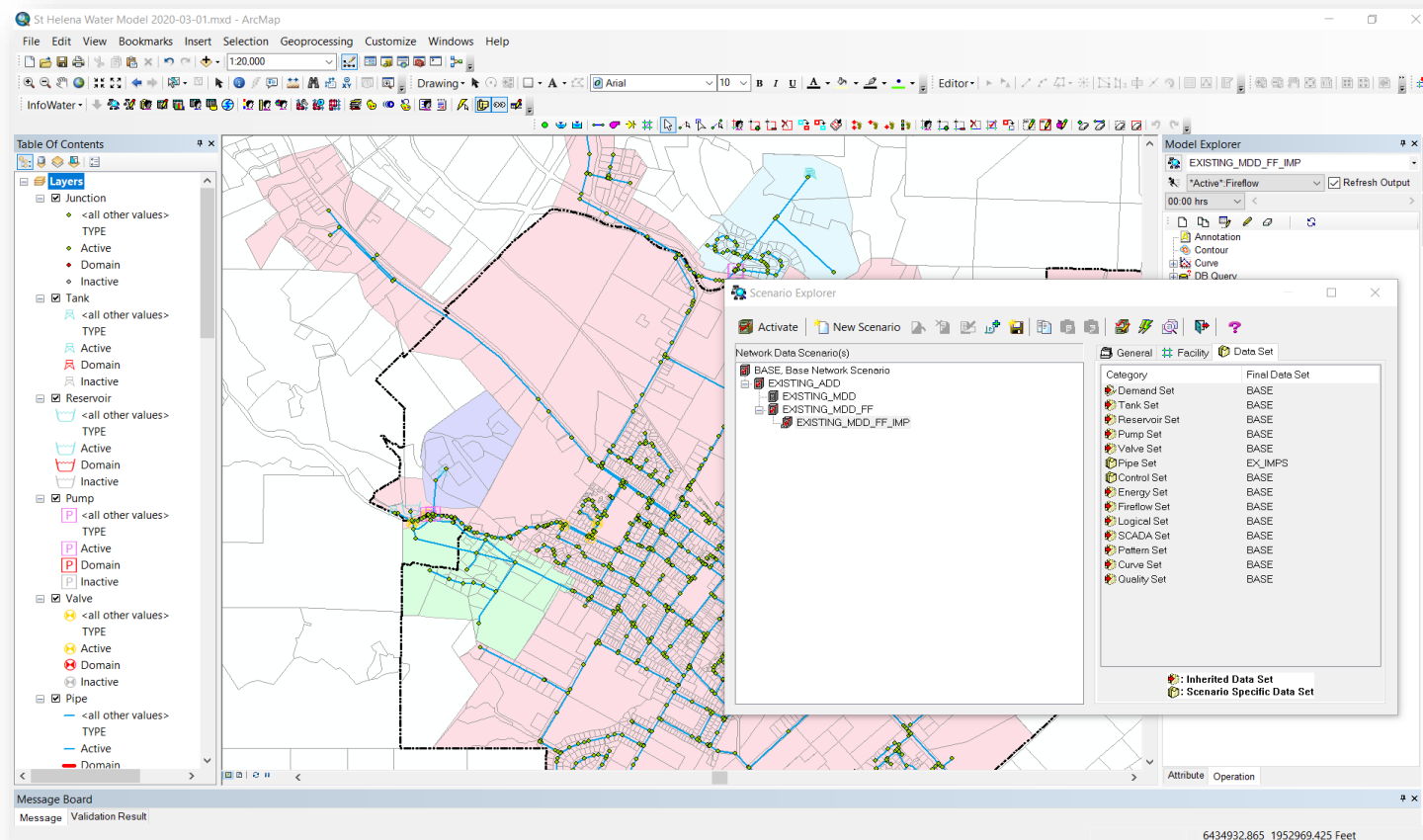
Demand Condition	Demand (mgd)	Peaking Factor
Average Day Demand	1.45	1.00
Maximum Day Demand	2.63	1.81
Peak Hour Demand	4.20	2.90

// Water System Analysis Criteria is based on pressure, supply, storage, and velocity

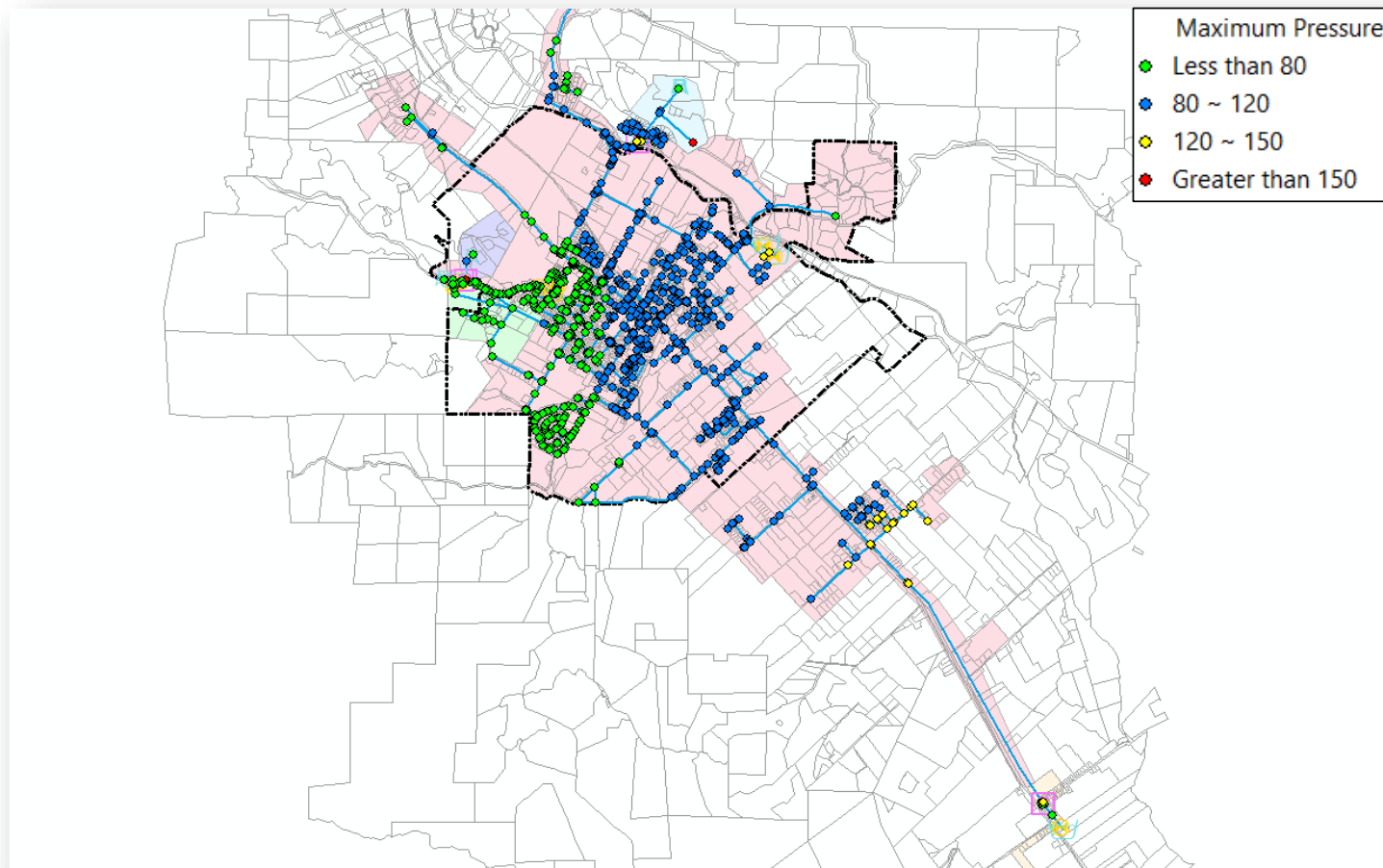
Criterion	Condition	Criteria
Pressure	Non-Fireflow Conditions	30 psi
	Maximum Day Demand & Fire	20 psi
Storage	Operational	25% of Max Day
	Fire Flow	Max Fire Flow x Duration
	Emergency	75% of Max Day
Supply	Max Day, Peak Hour	Met with Firm Capacity ⁽¹⁾
Velocity	Peak Hour	10 fps

1. Firm Capacity = Capacity with Largest Source out of Service

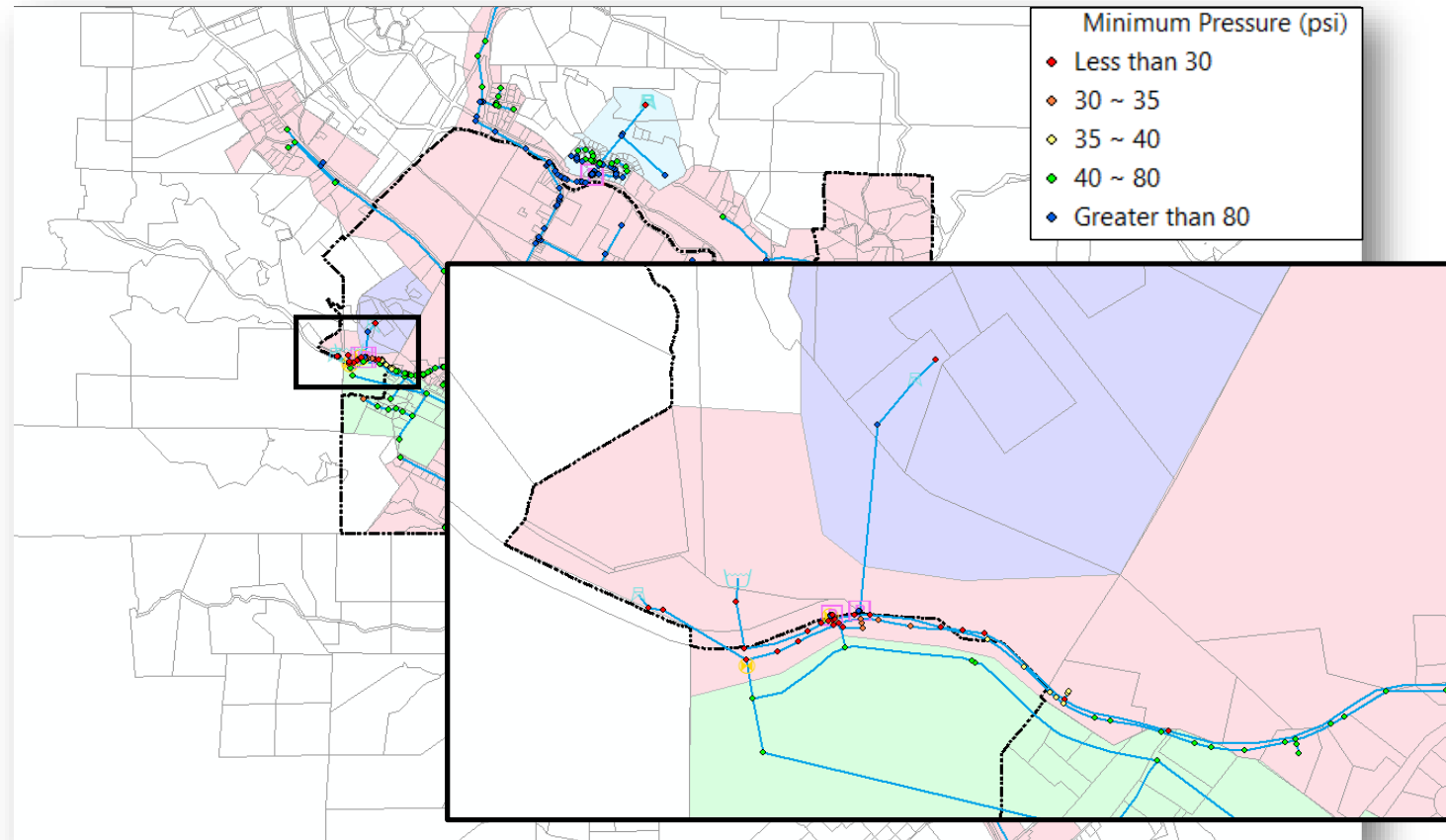
// Water model simulates average day, maximum day, and maximum day plus fire flow conditions



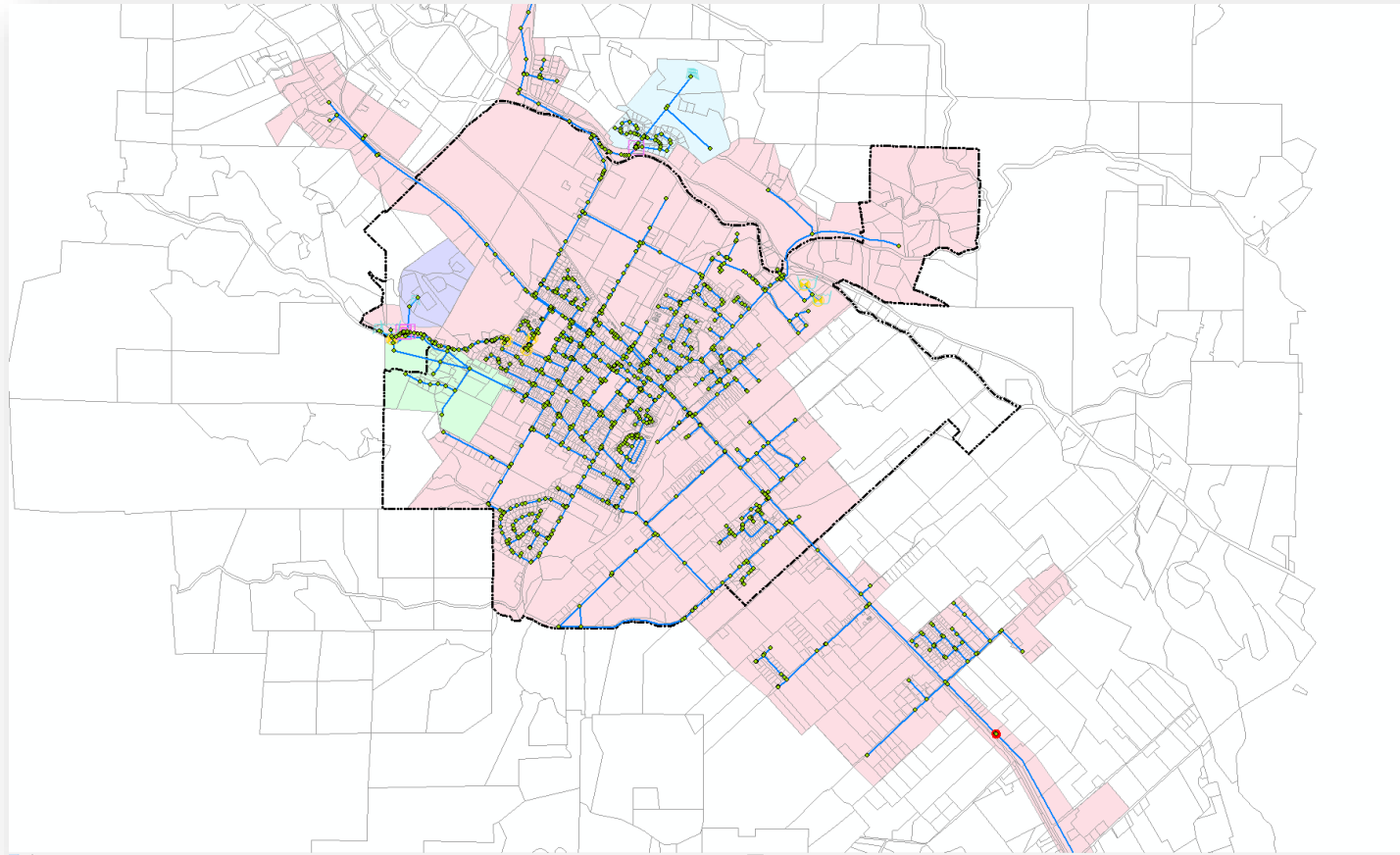
// Existing ADD hydraulic analysis showed that the system generally operates below 120 psi



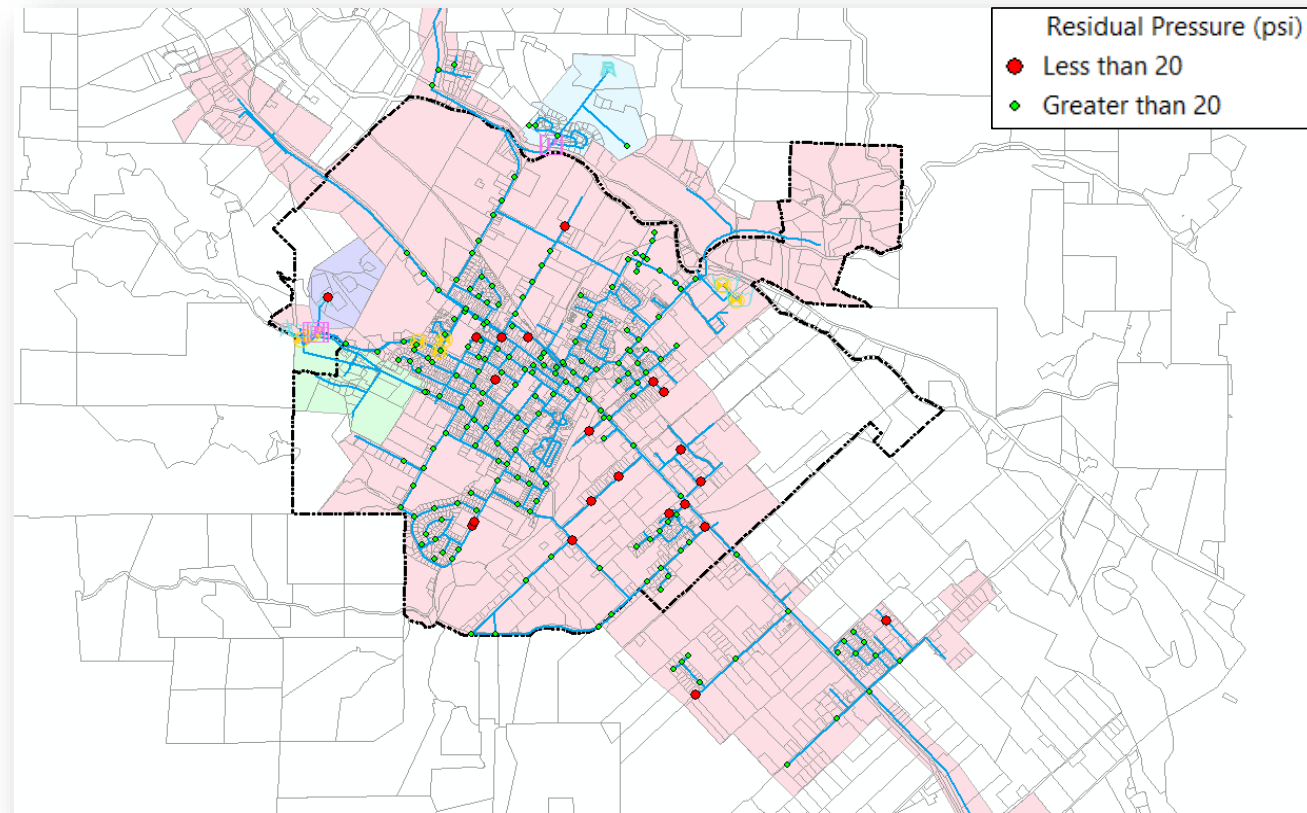
// Existing PHD analysis showed pressures above 40 psi throughout the system



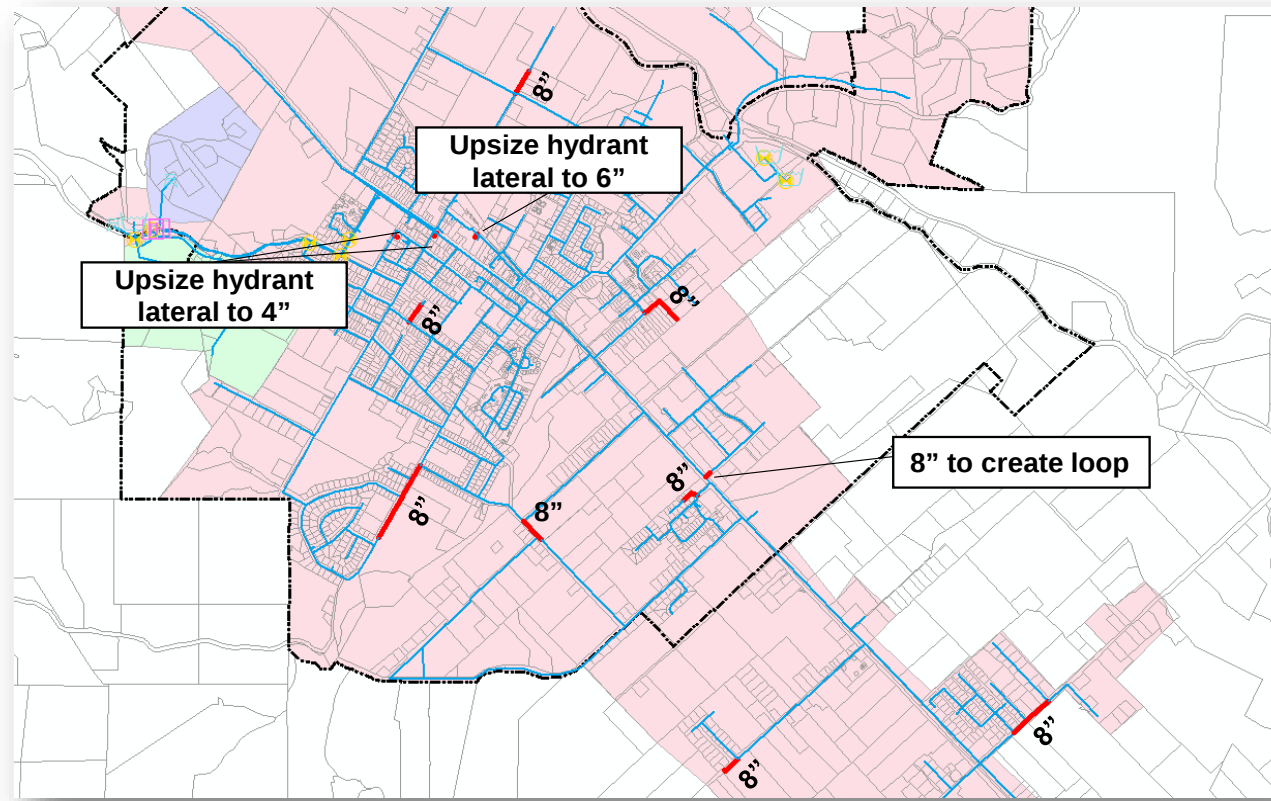
// Velocity analysis showed isolated capacity restriction with a velocity above 10 ft/s



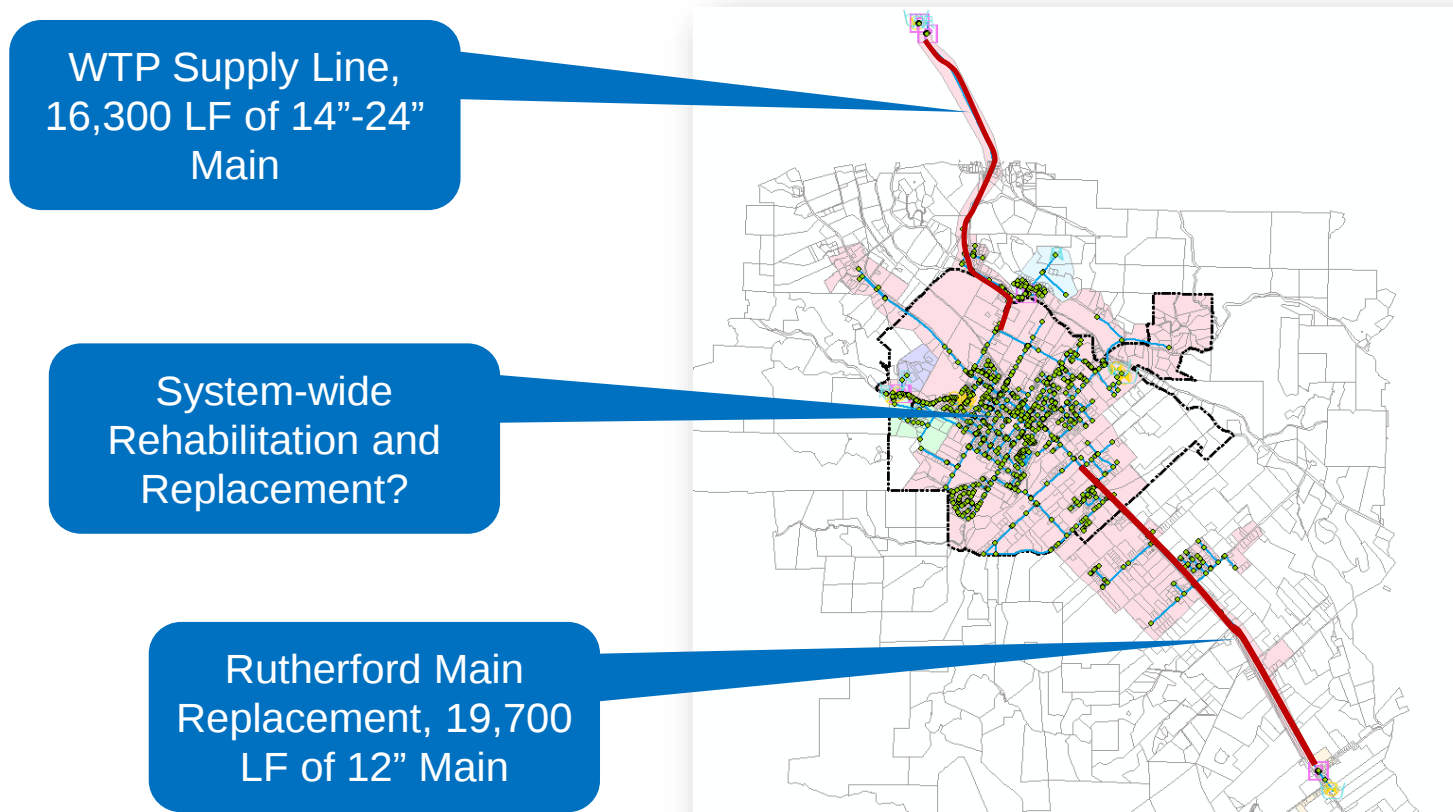
// Fire flow analysis flagged 21 hydrant locations with residual pressures below 20 psi



// 4,900 LF of pipeline upgrades were developed to mitigate remaining deficiencies



// Additional reliability and resilience recommendations were developed based on risk



// Preliminary Capital Project Costs

Projects	Description	Total Project Costs (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

// Preliminary capital project costs

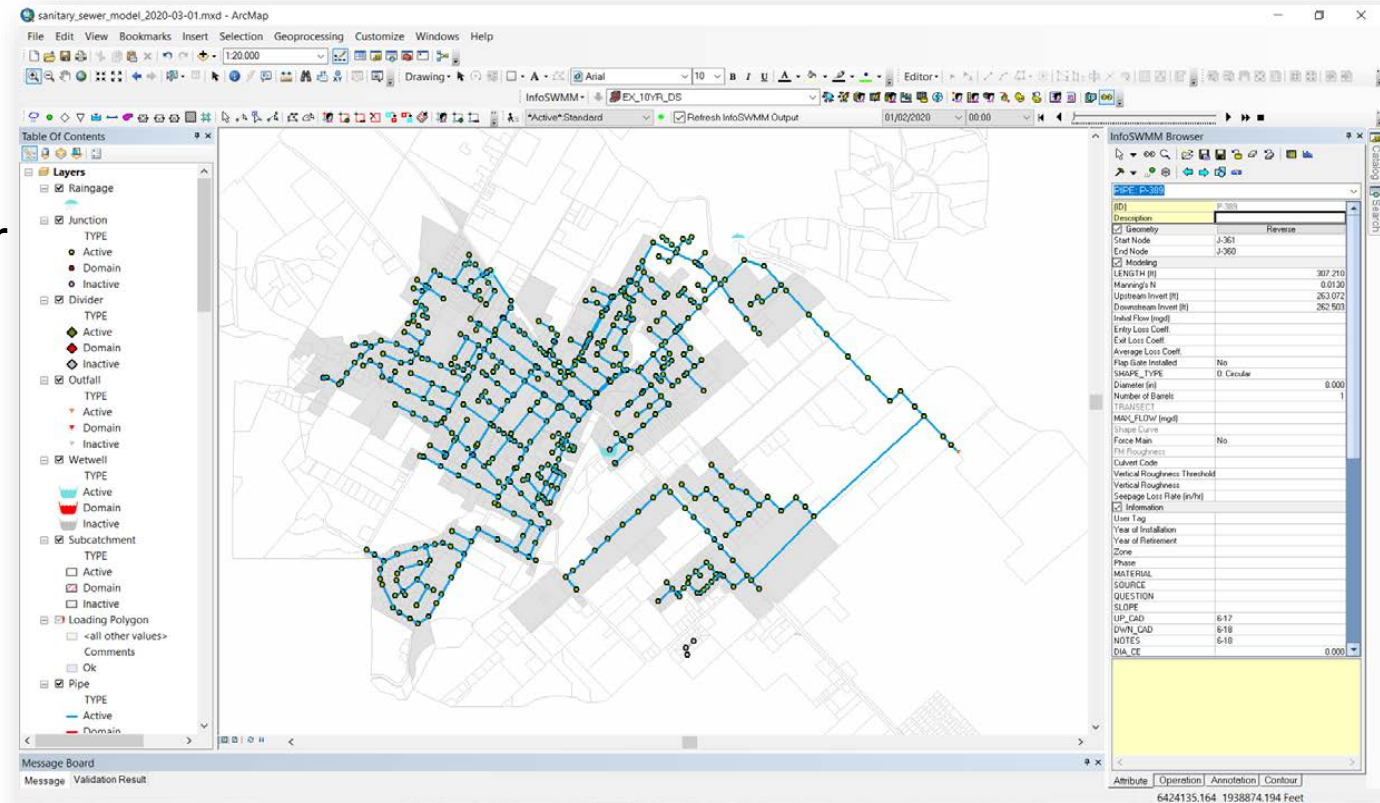
Projects	Phase 1 (2021-2025) \$Million	Phase 2 (2026-2030) \$Million	Phase 3 (2031-2035) \$Million	Phase 4 (2036-2040) \$Million
Hydraulic Constraints		\$0.9		
Reliability & Resiliency	\$13.6			
Rehabilitation & Replacement		\$1.0	\$1.5	\$1.5
Total CIP	\$13.6	\$1.9	\$1.5	\$1.5
\$/Year	\$2.7	\$0.38	\$0.3	\$0.3

Wastewater Collection System Analysis

Filename.ppt/18

// Existing Wastewater Collection System

- 23.9 miles of pipe
- 4 to 24 inches in diameter
- 0.38 mgd ADWF
- 5.0 mgd PWWF



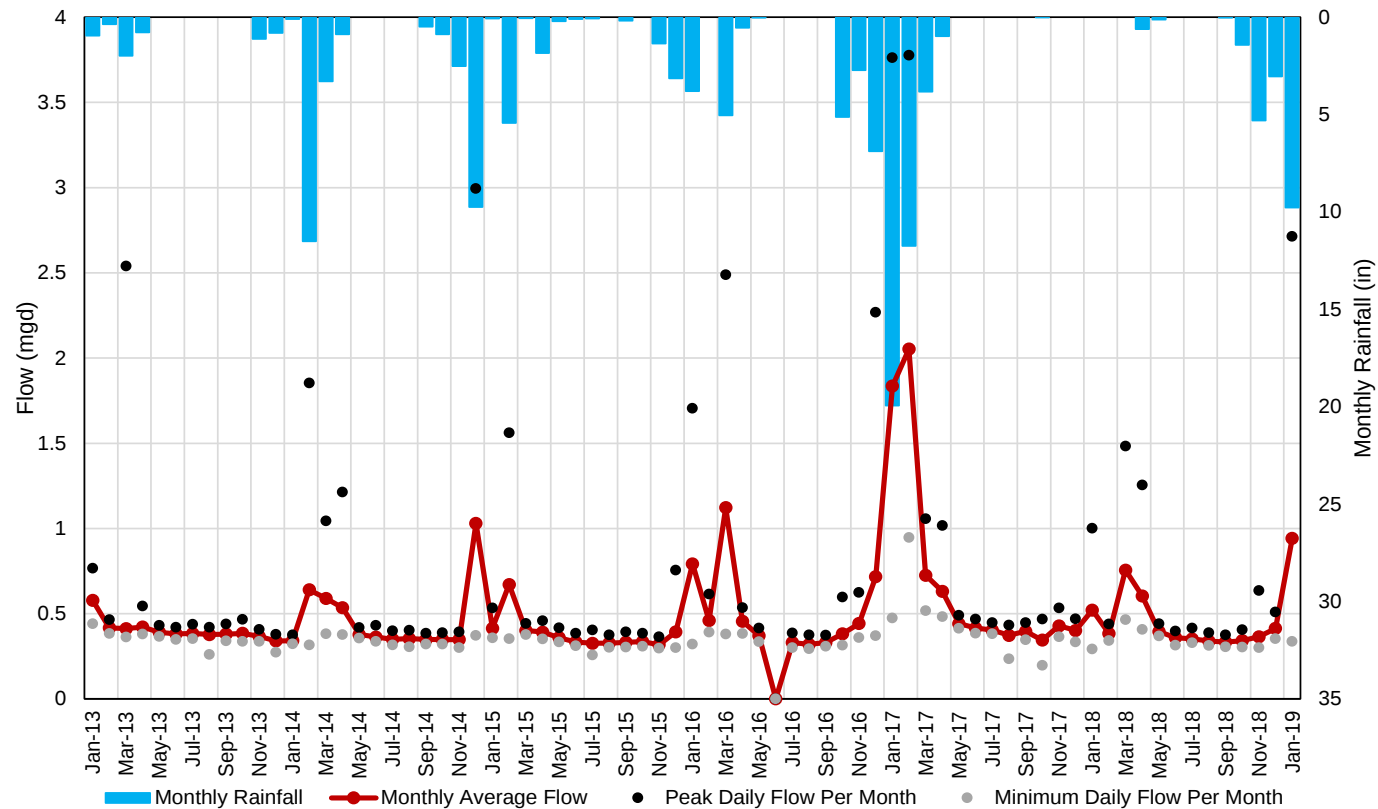
// Historical ADWF ranged from 0.33 mgd to 0.40 mgd from 2013 to 2018

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 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.

// Monthly influent flow showed significant wet weather response in the collection system



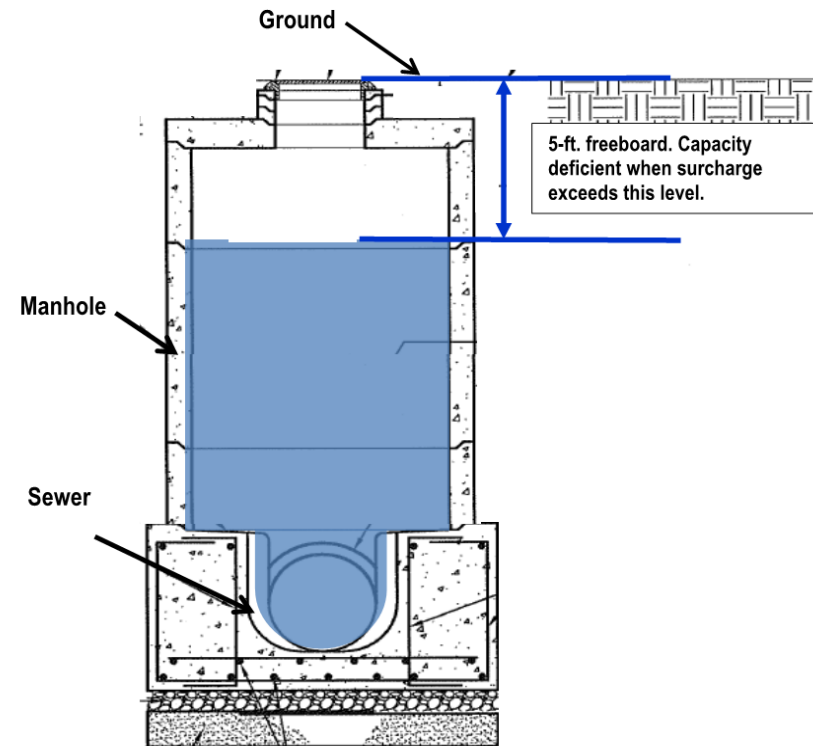
// System performance is measured against allowable flow depth criteria

Existing Pipes

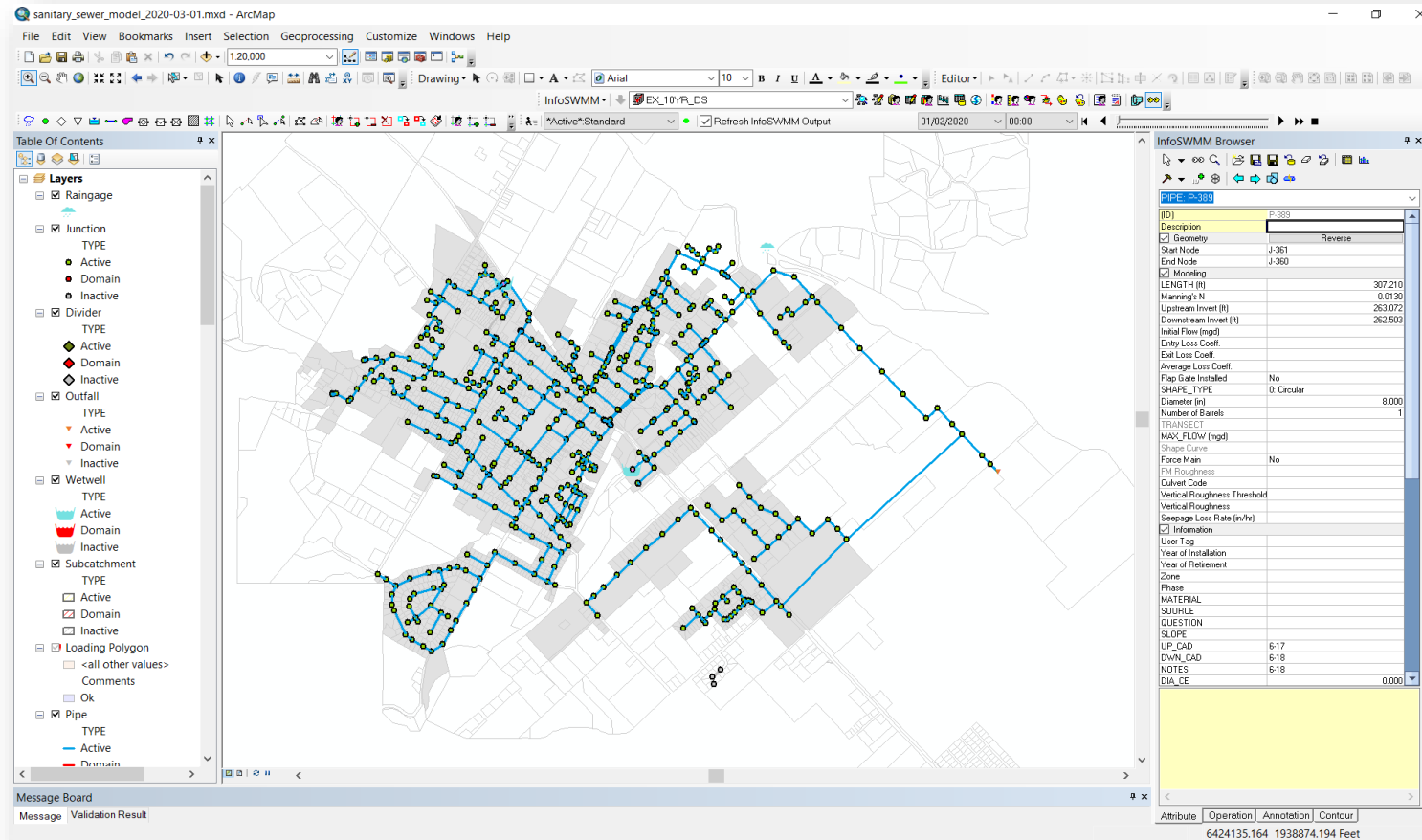
- Maximum flow depth to within 3-ft of manhole rim

New Sewers, Max d/D

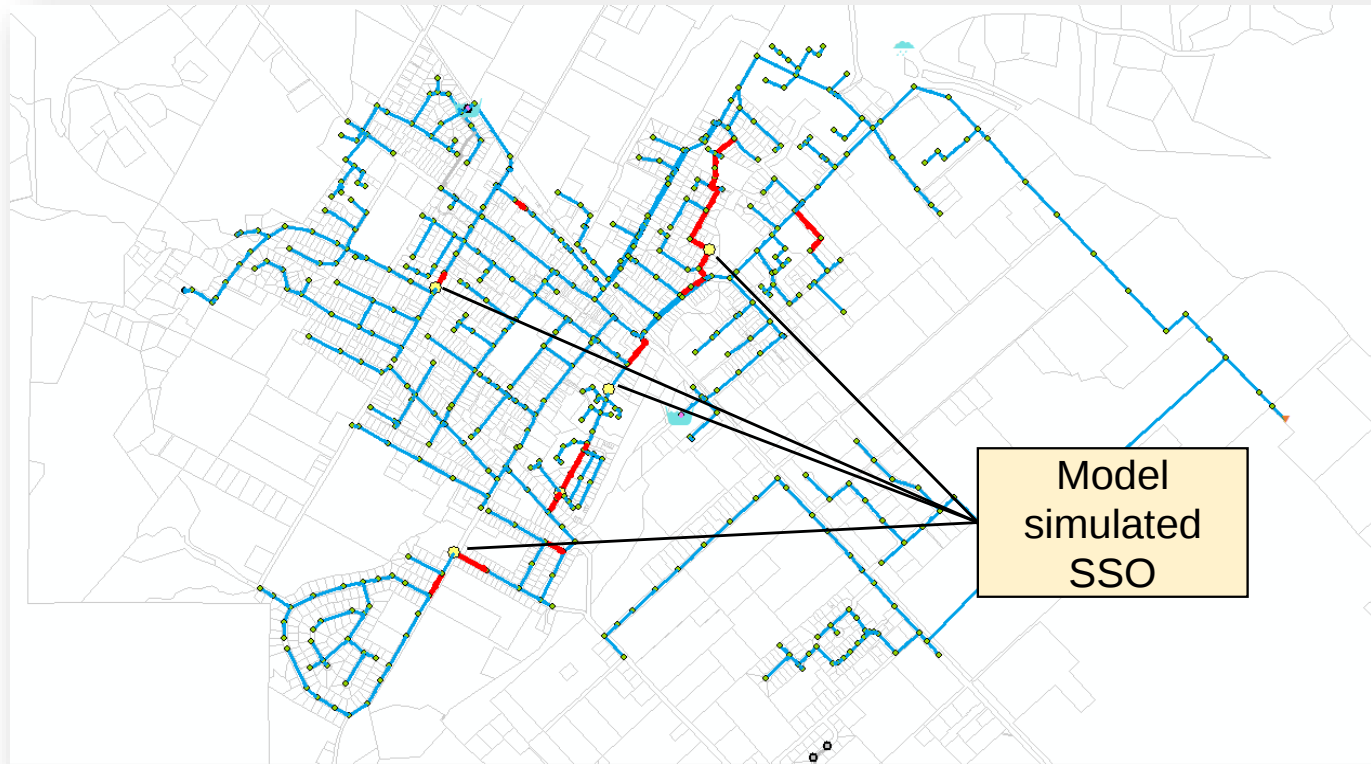
- Smaller than 12-inches = 0.5
- 12-inches to 18-inches = 0.67
- Larger than 18-inches = 0.75



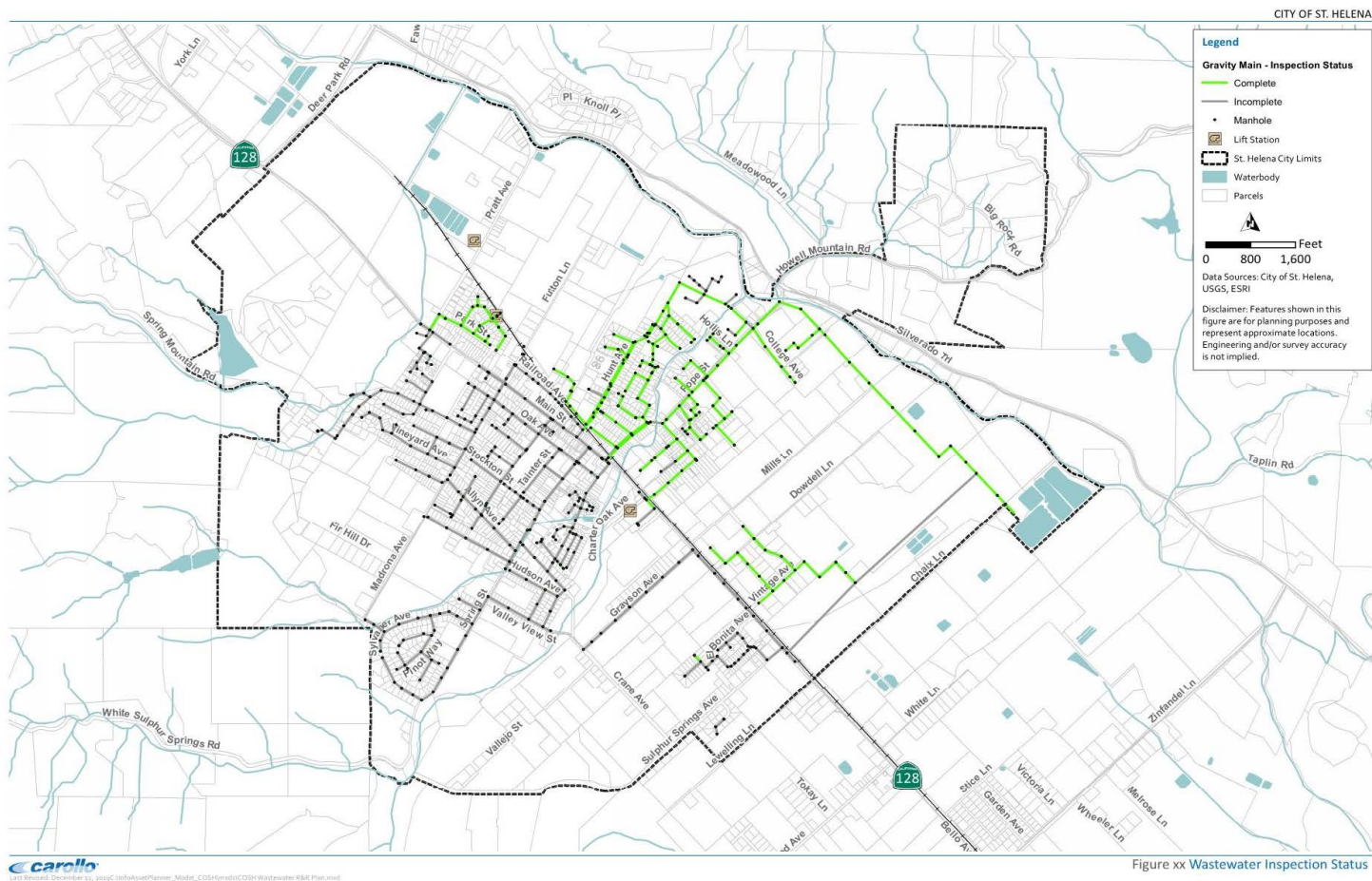
// The model was constructed in the InfoSWMM platform



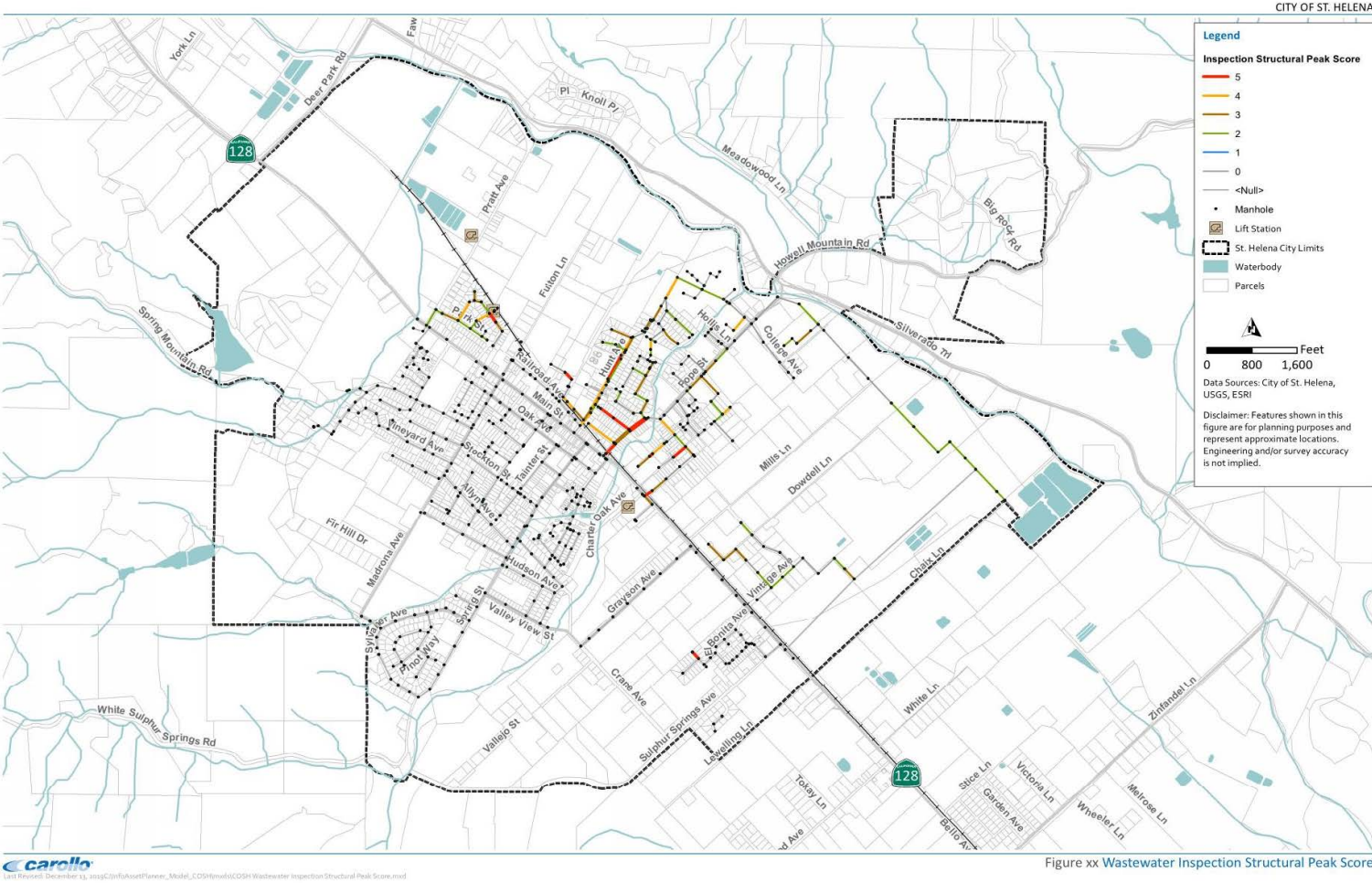
// The existing 10-year storm event simulated 5,900 LF of deficient sewers and SSOs at 5 locations



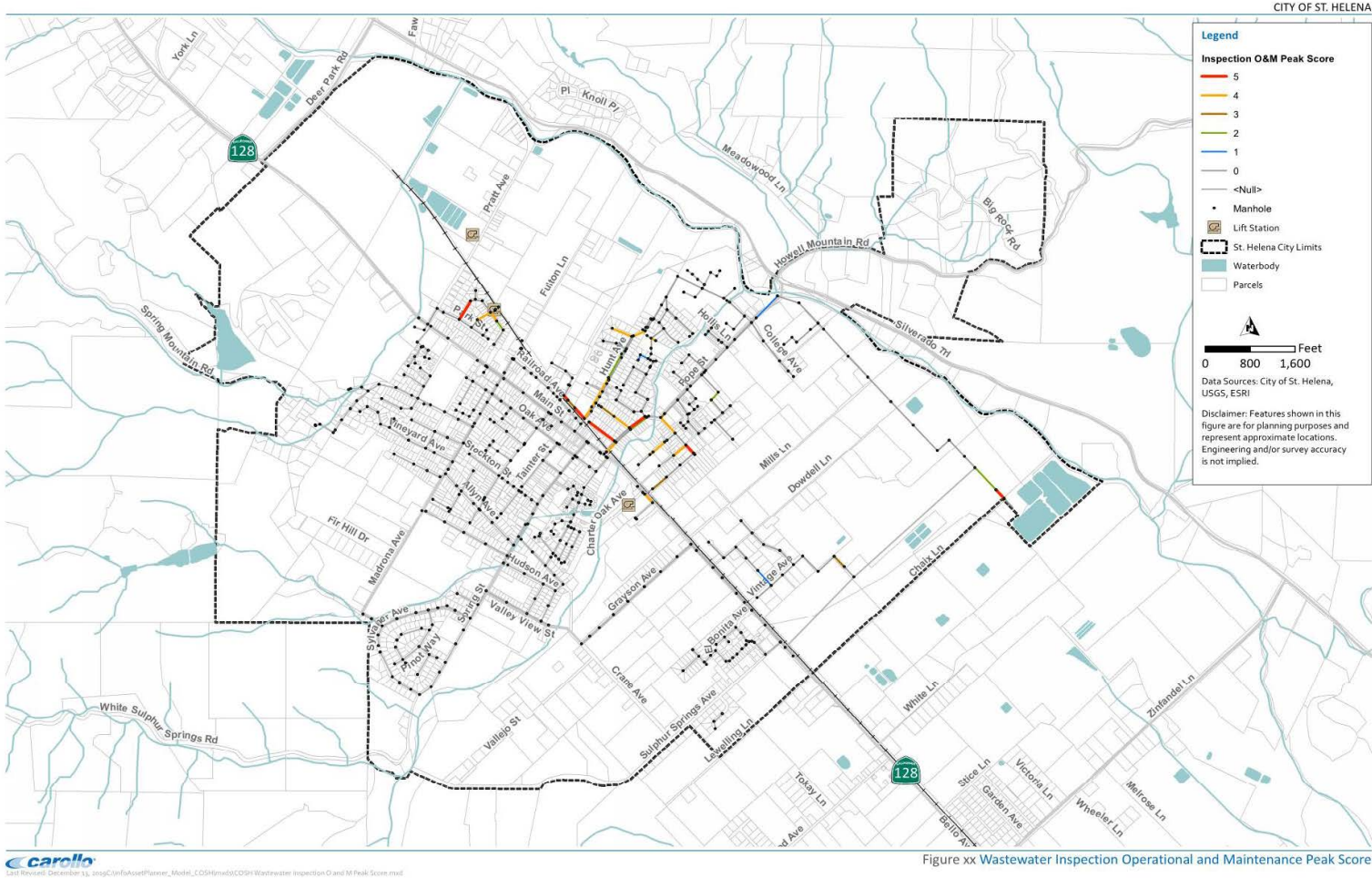
Existing CCTV inspections cover ~10 miles of sewer system



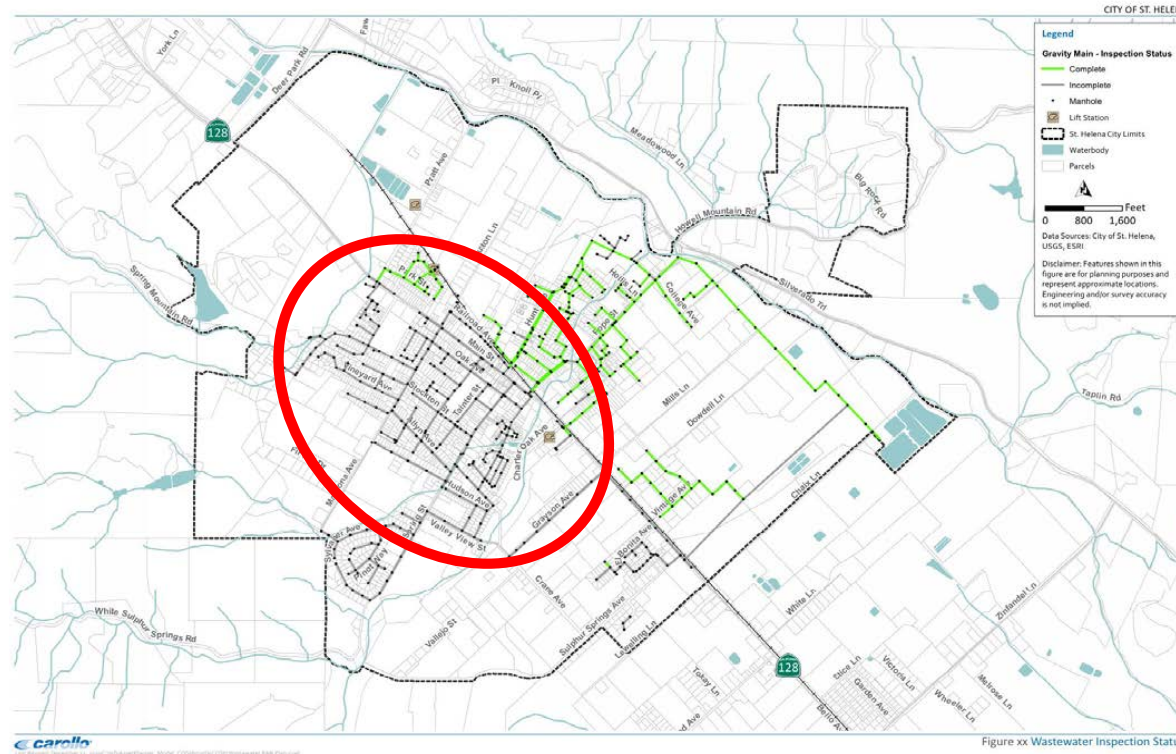
Condition scores show 1.8 miles with a Structural Peak Score of ≥ 4



O&M scores showed similar deficiencies

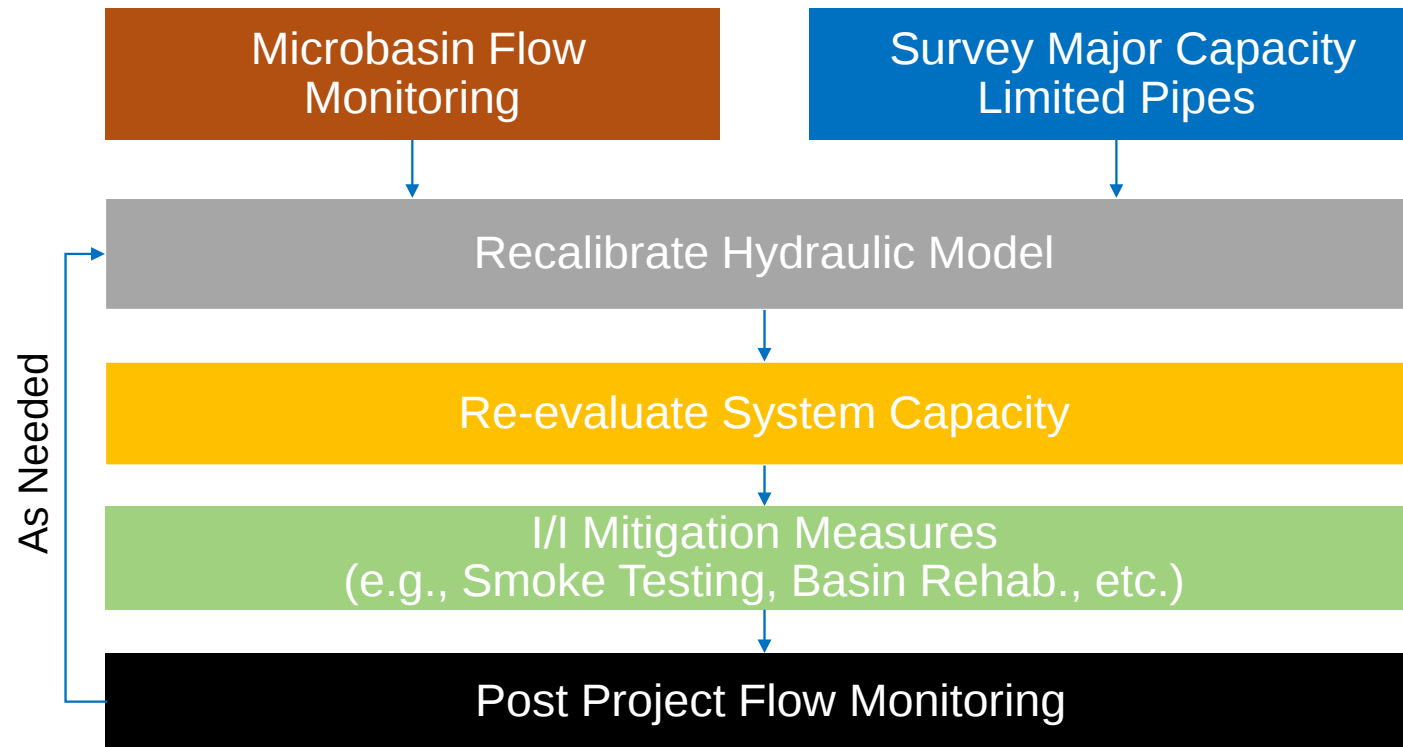


CCTV inspection program needs to include additional older areas of City's system

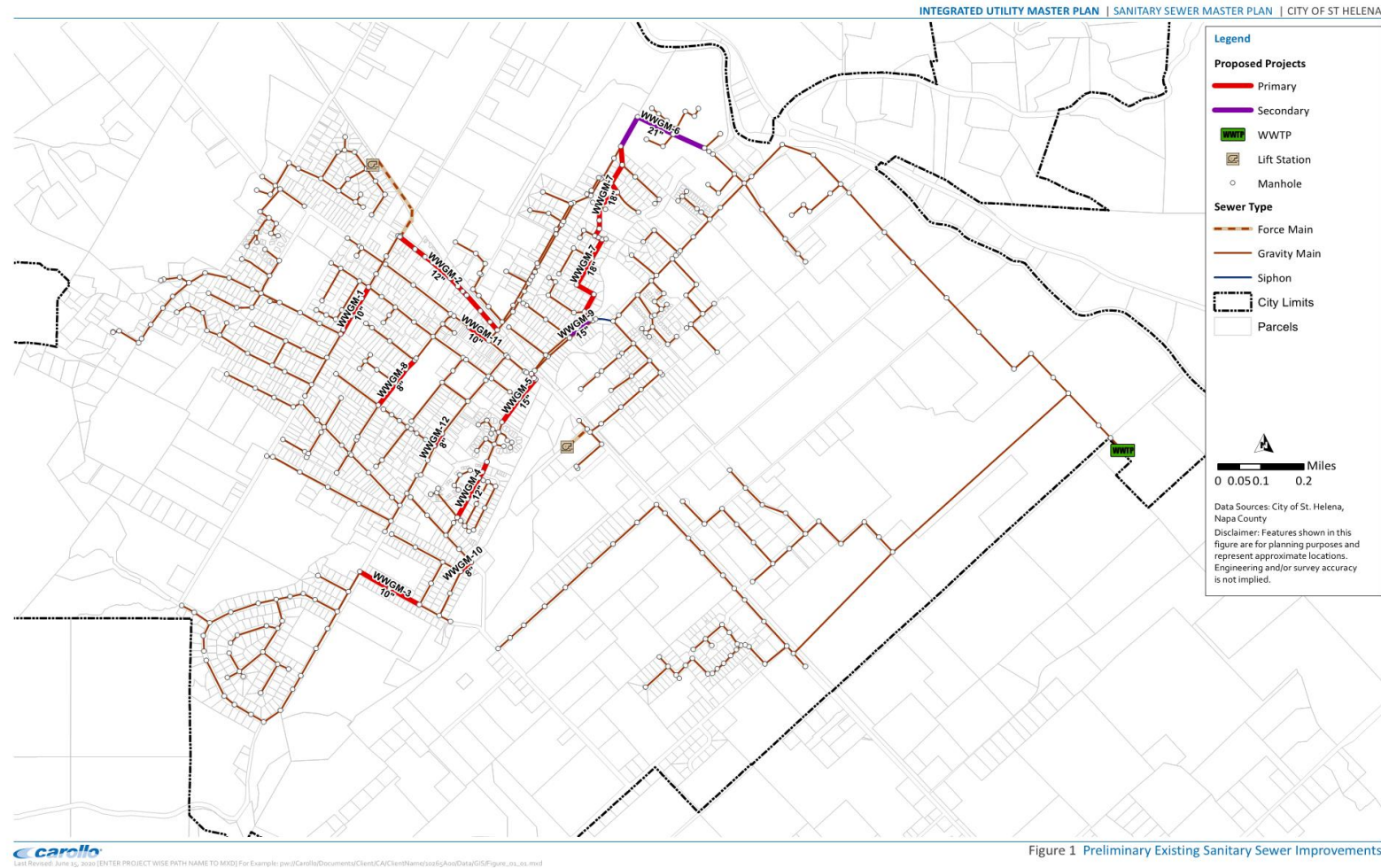


Phased CCTV program to inspect remaining 12 miles of sewer. ~\$220k

// A programmatic I/I reduction & rehab program could potentially mitigate the need for costly pipeline upgrades



// Proposed Improvements



// Preliminary Capital Project Costs

Projects	Description	Total Project Costs (Million \$)
Hydraulic Constraints	Capacity Increase (SSO Risk)	\$3.9
CCTV Inspection	Phase 1 and Phase 2	\$0.9
I/I investigation	Wet Weather Flow Monitoring & Capacity Analysis	\$0.1
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

// Preliminary capital project costs

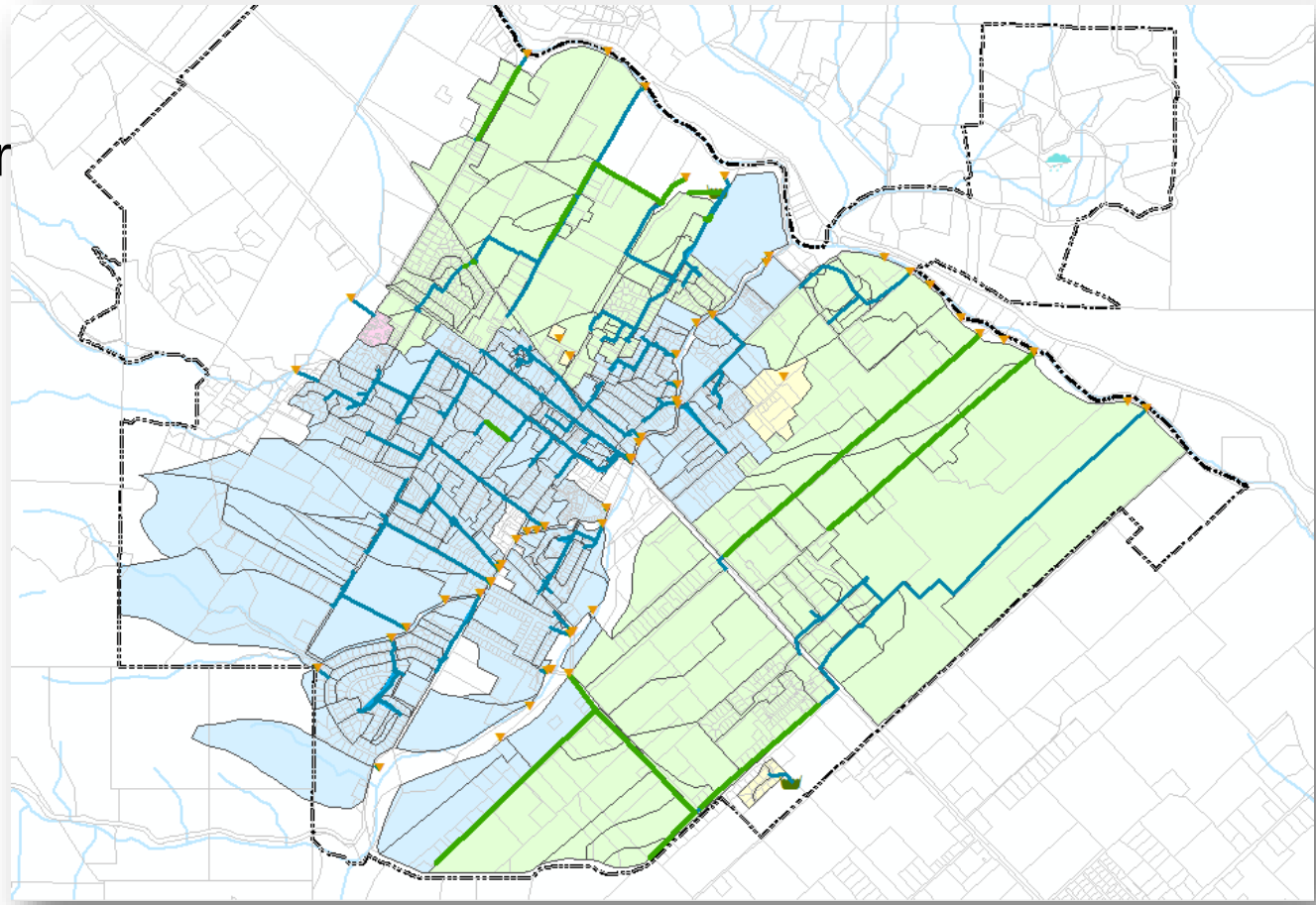
Projects	Phase 1 (2021-2025) \$Million	Phase 2 (2026-2030) \$Million	Phase 3 (2031-2035) \$Million	Phase 4 (2036-2040) \$Million
Hydraulic Constraints	\$2.0	\$2.0		
CCTV Inspection	\$0.2	\$0.7		
I/I investigation	\$0.1			
Phase 1 Rehabilitation	\$2.7			
Phase 2 Rehabilitation		\$1.2	\$1.2	\$1.2
Total CIP	\$5.0	\$3.9	\$1.2	\$1.2
\$/Year	\$1.0	\$0.8	\$0.2	\$0.2

Storm Drainage System Analysis

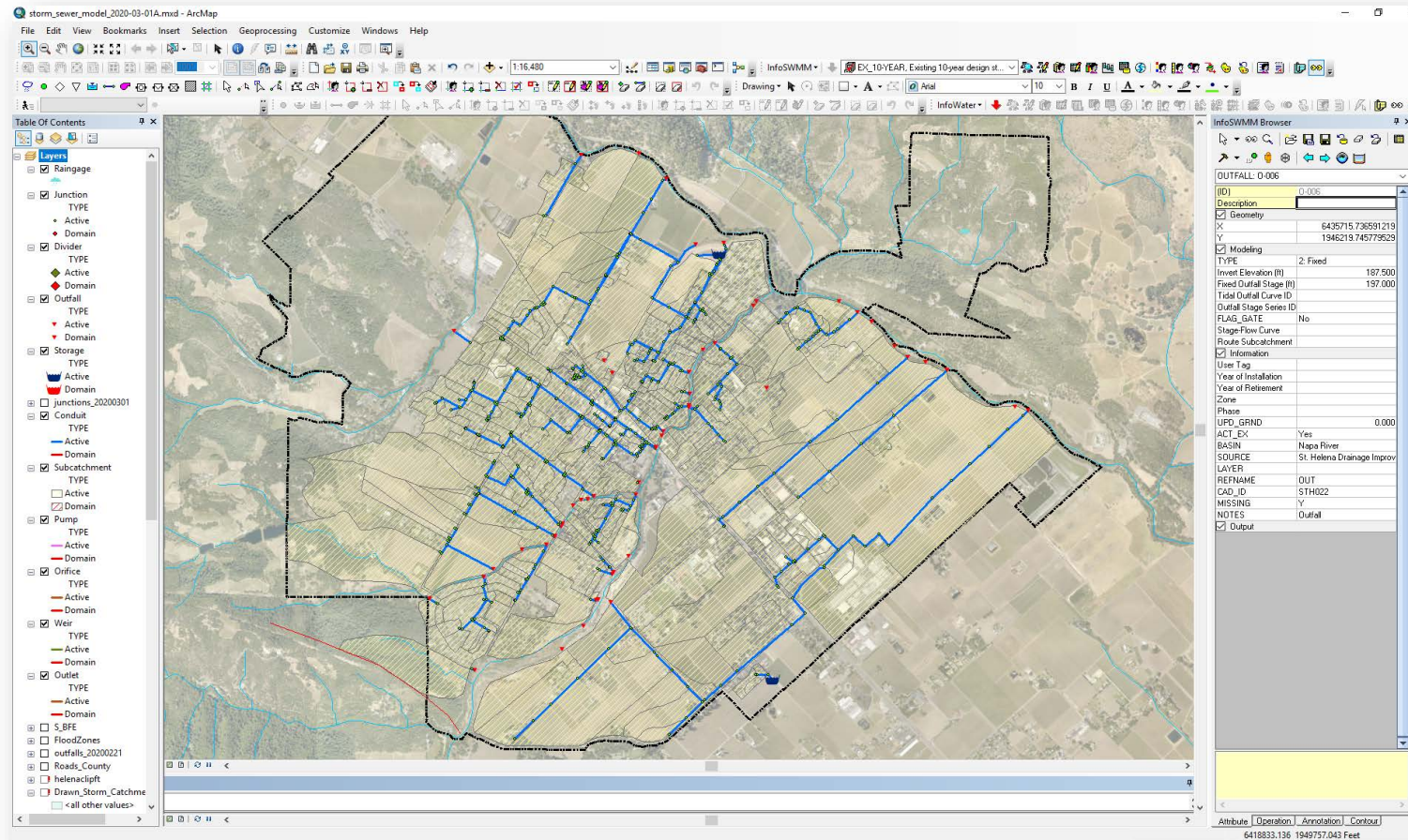
Filename.ppt/33

// Existing Storm Drainage System

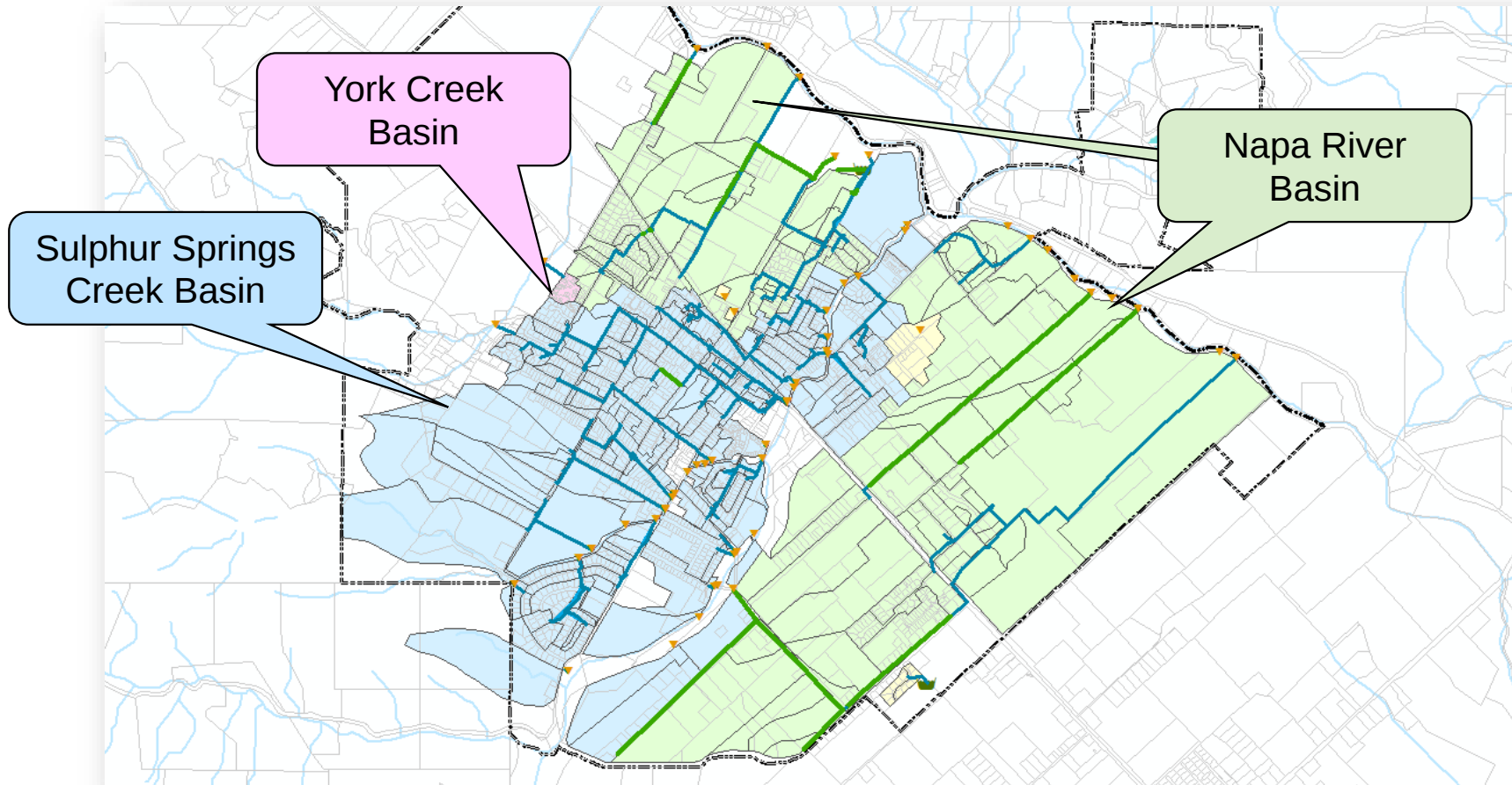
- 13 miles of pipe
- 40 to 60 inches in diameter
- Surface drainage
- Ditch drainage
- Discharge to Napa River



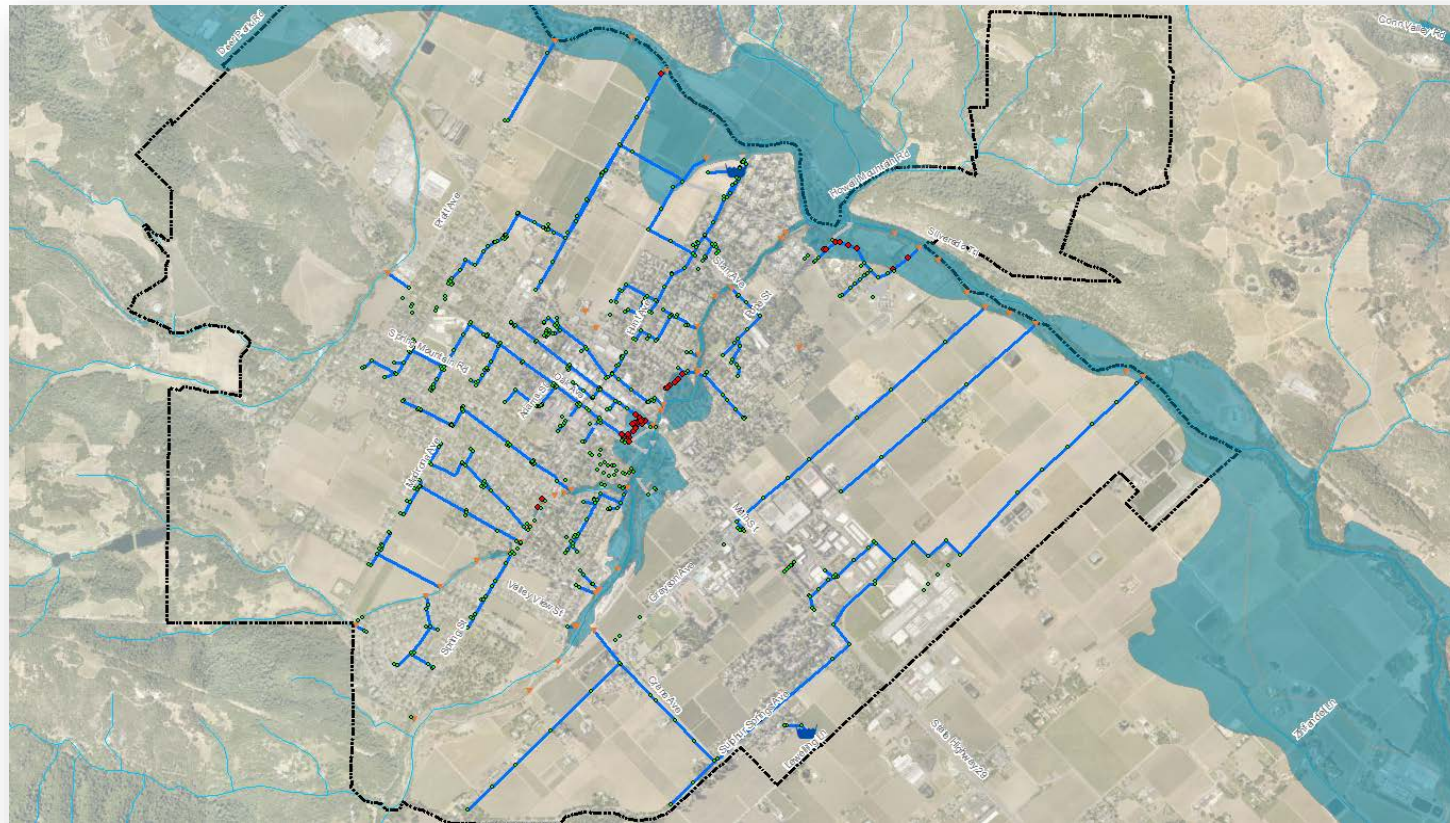
// The storm drainage model was developed in InfoSWMM based on City records and GIS topology data



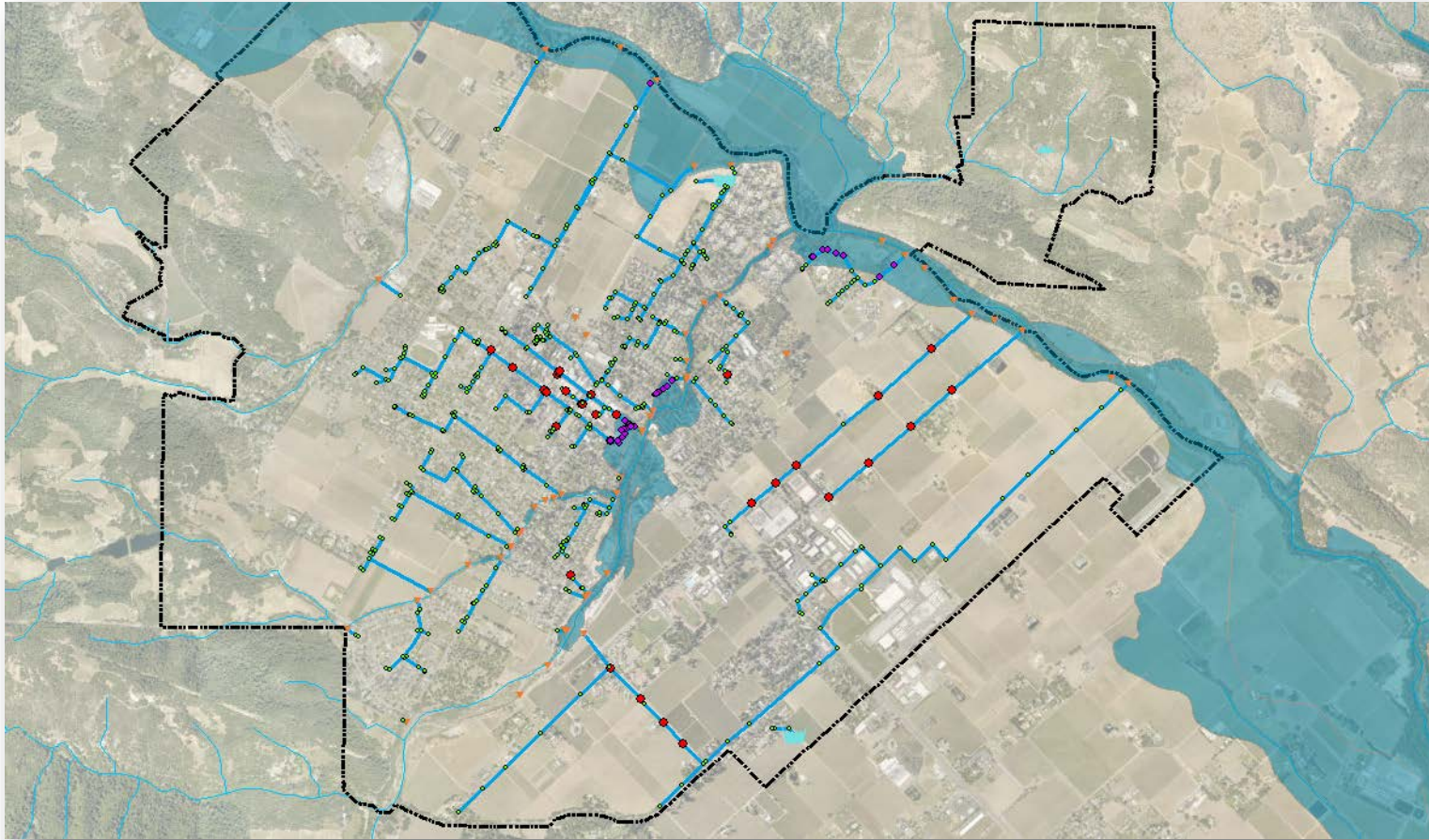
// Storm drain system was broken down by basin (York Creek, Napa River, Sulphur Springs Creek)



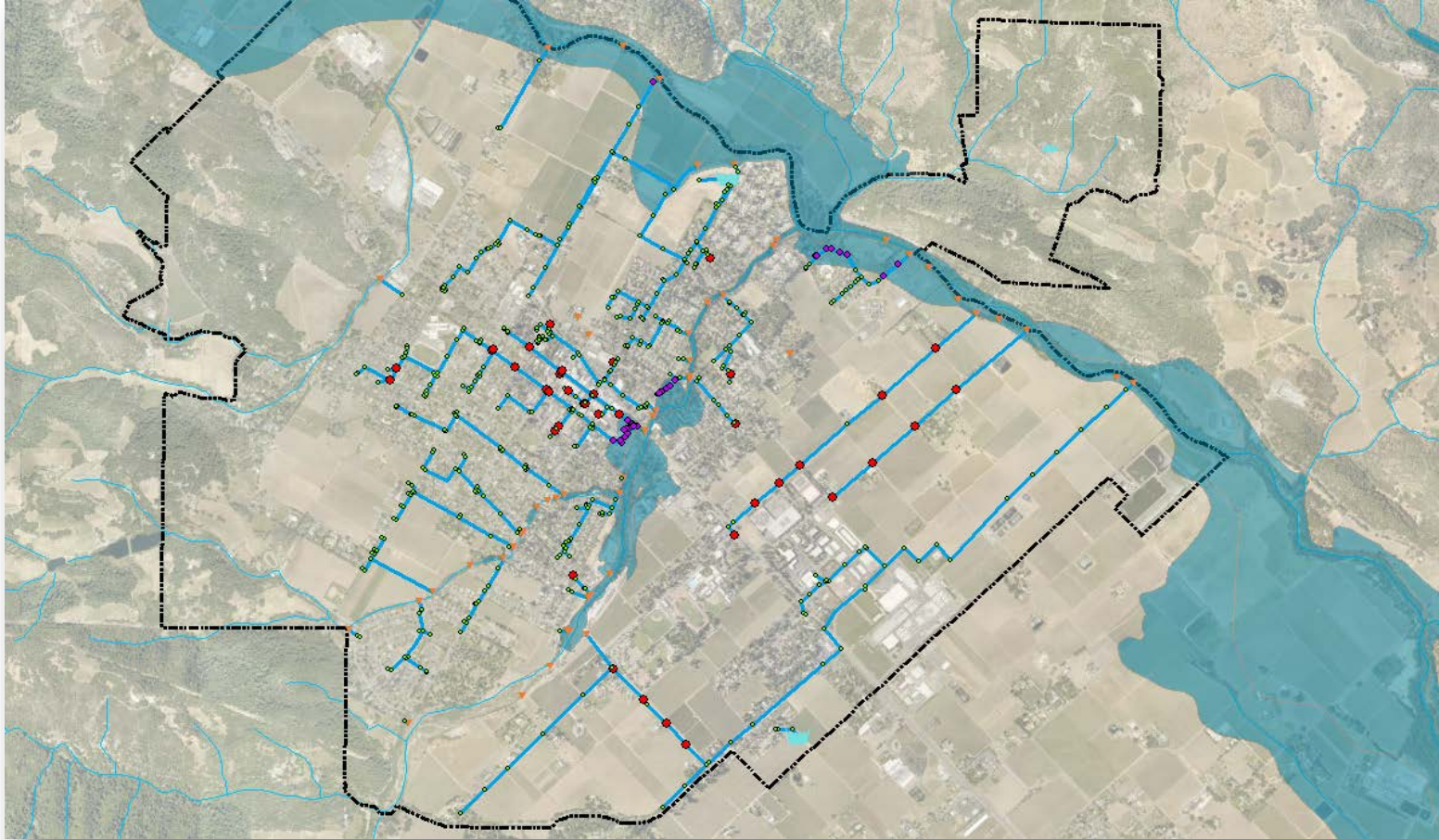
// Outfall depths assumed to be equal to FEMA 100-year flood zone elevation or top of pipe



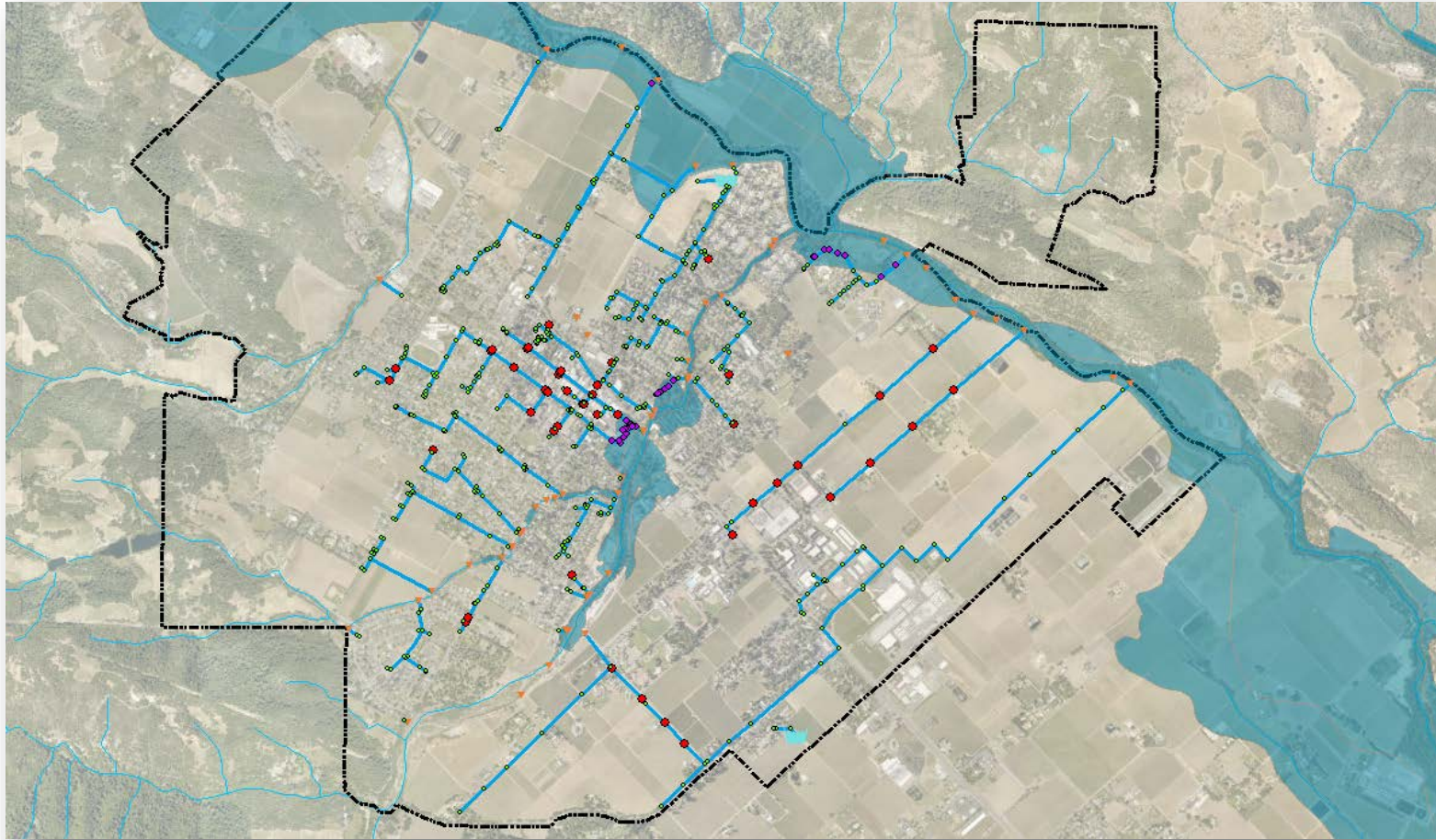
// Areas of flooding were shown by the 10-year storm simulation



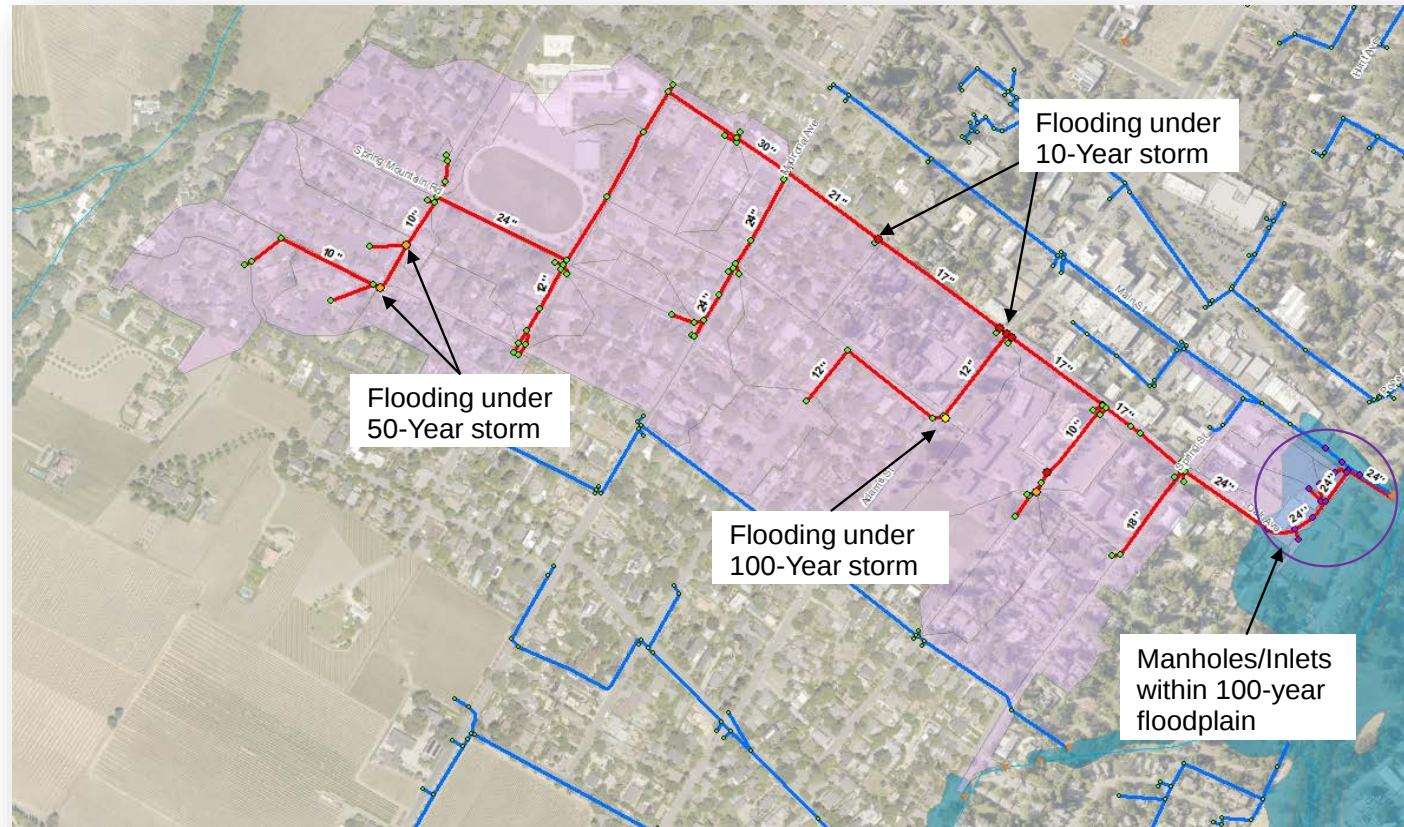
// Additional flooding shown under 50-year storm



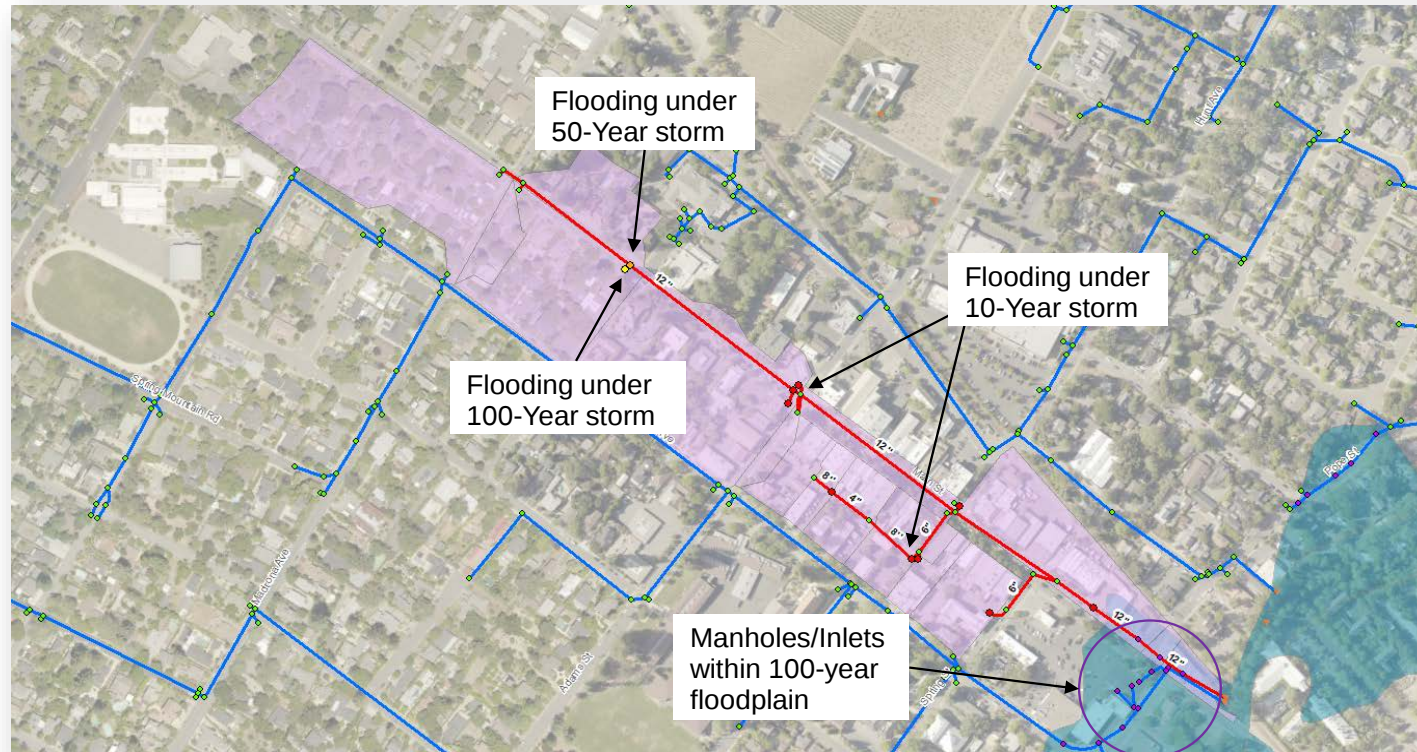
// A few additional areas of flooding were simulated in the 100-year storm



// Oak-Hillview-Spring Mountain Branch (24") showed flooding under all design storms



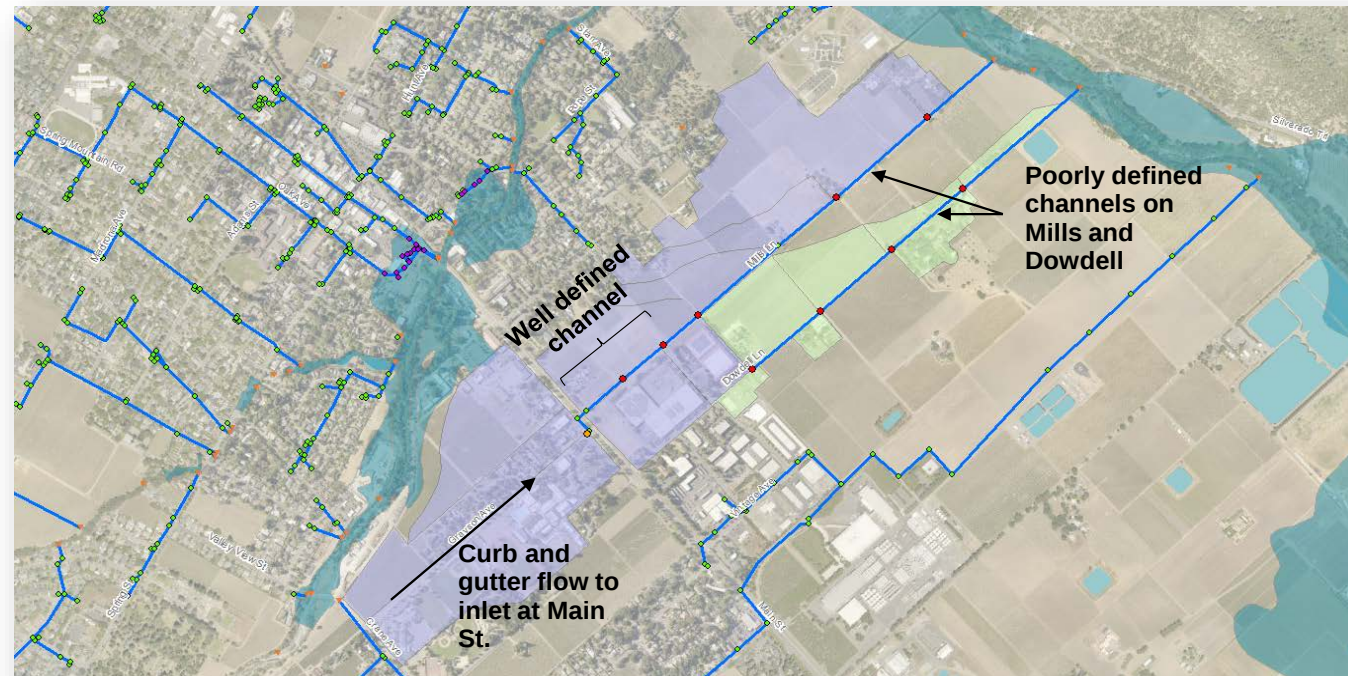
// Main Street Branch (12") is capacity limited under 10 year design storm conditions



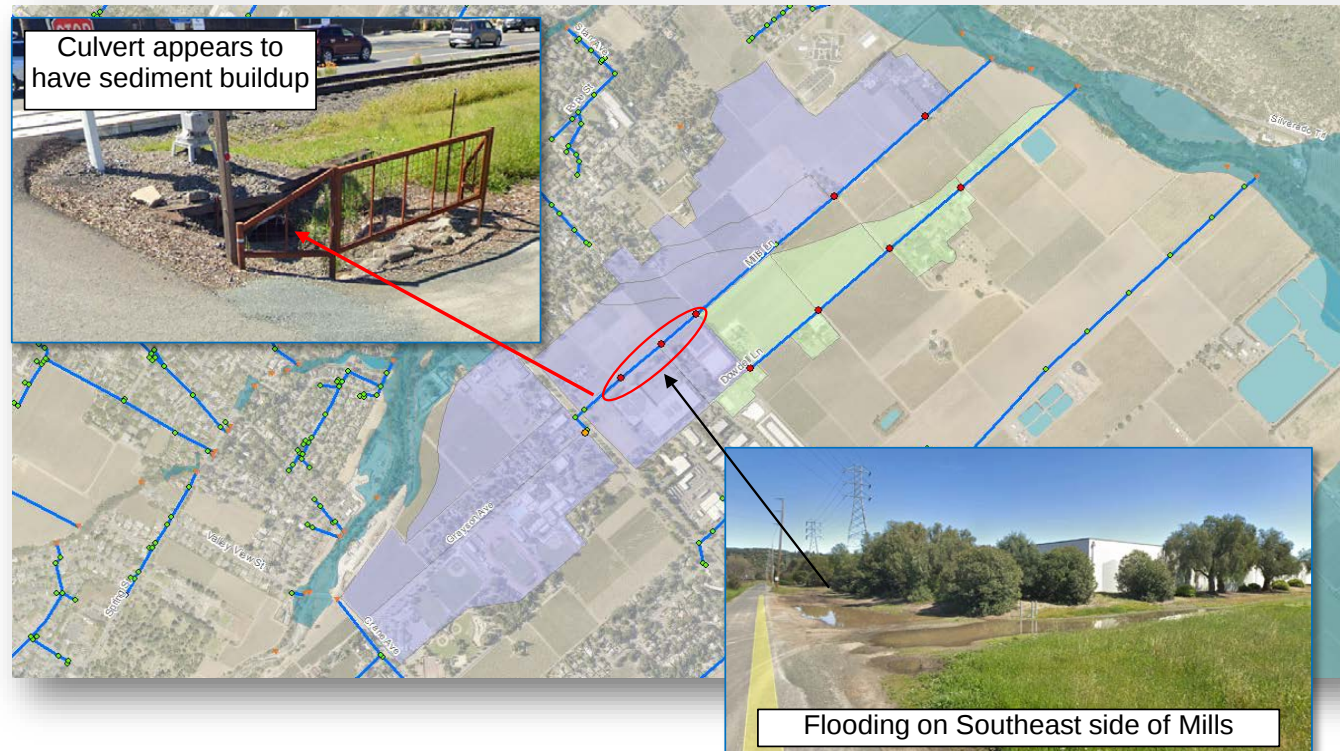
// The model simulates flooding in the Crane Avenue ditch (under 10-year storm)



// Mills and Dowdell Ditches have flooding under 10-year design storm



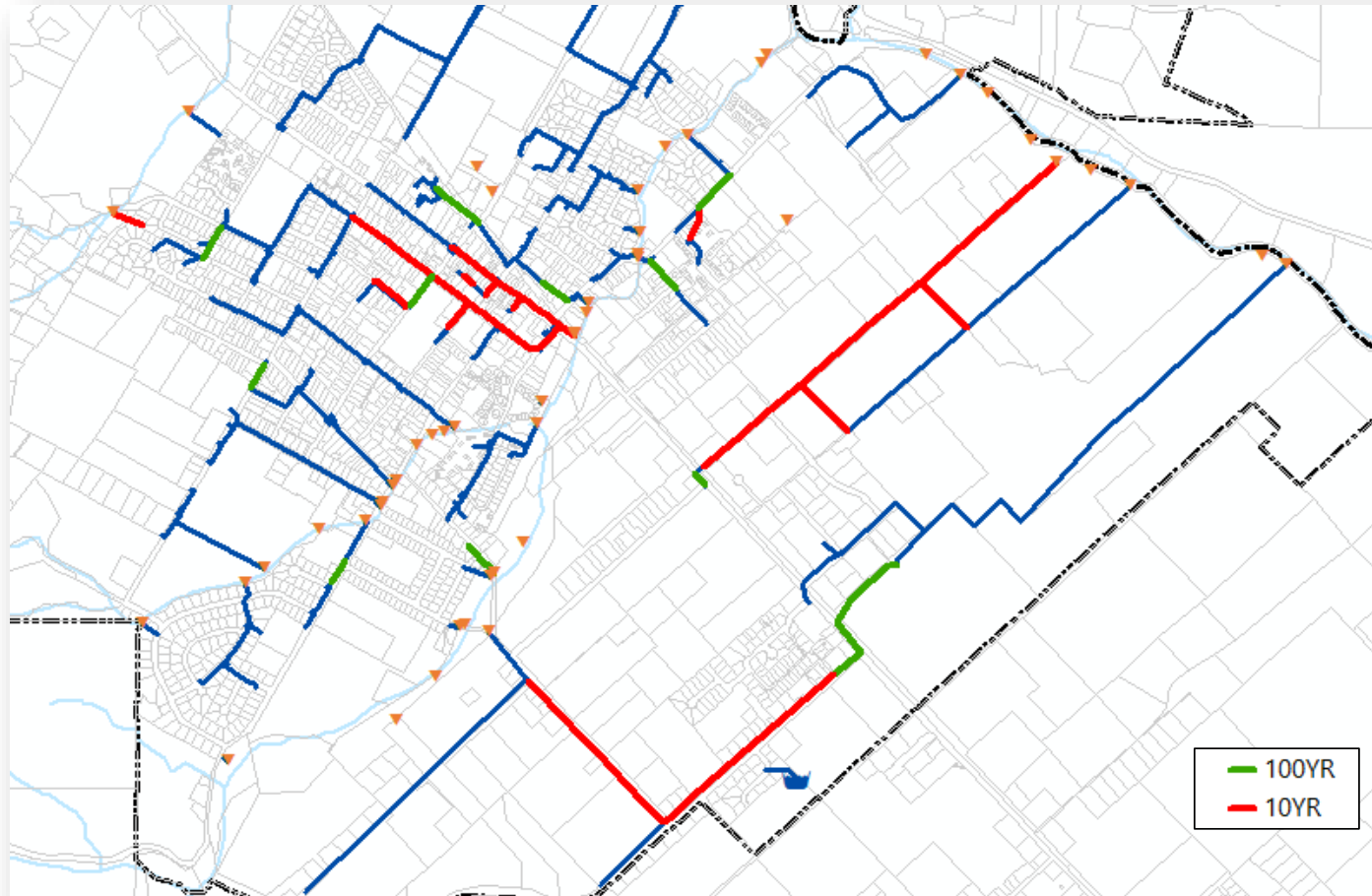
// Additional issues were noted on Mills Lane



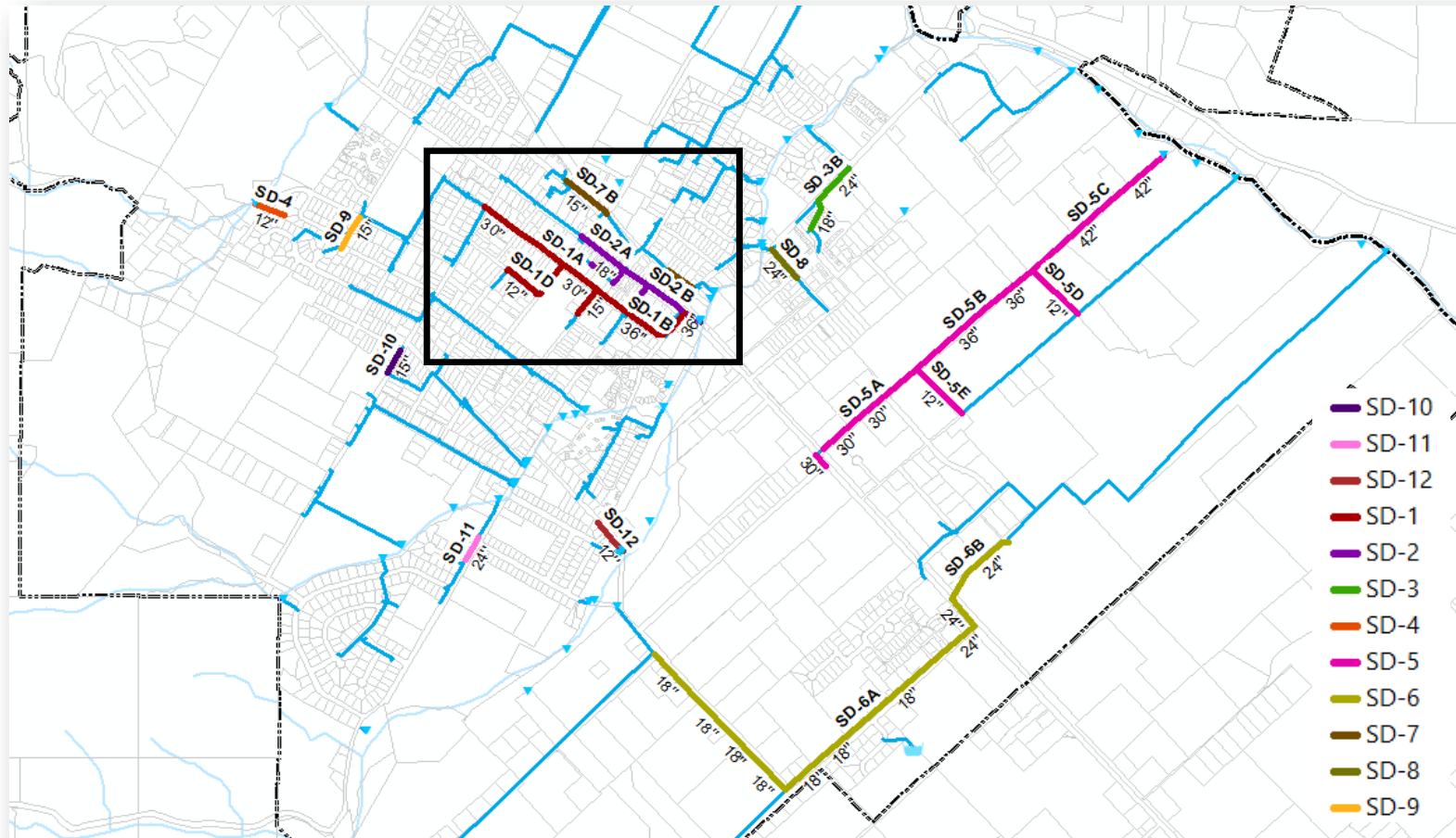
// Lack of curb/gutter on Dean York Lane and Spring Mountain Road leading to localized flooding



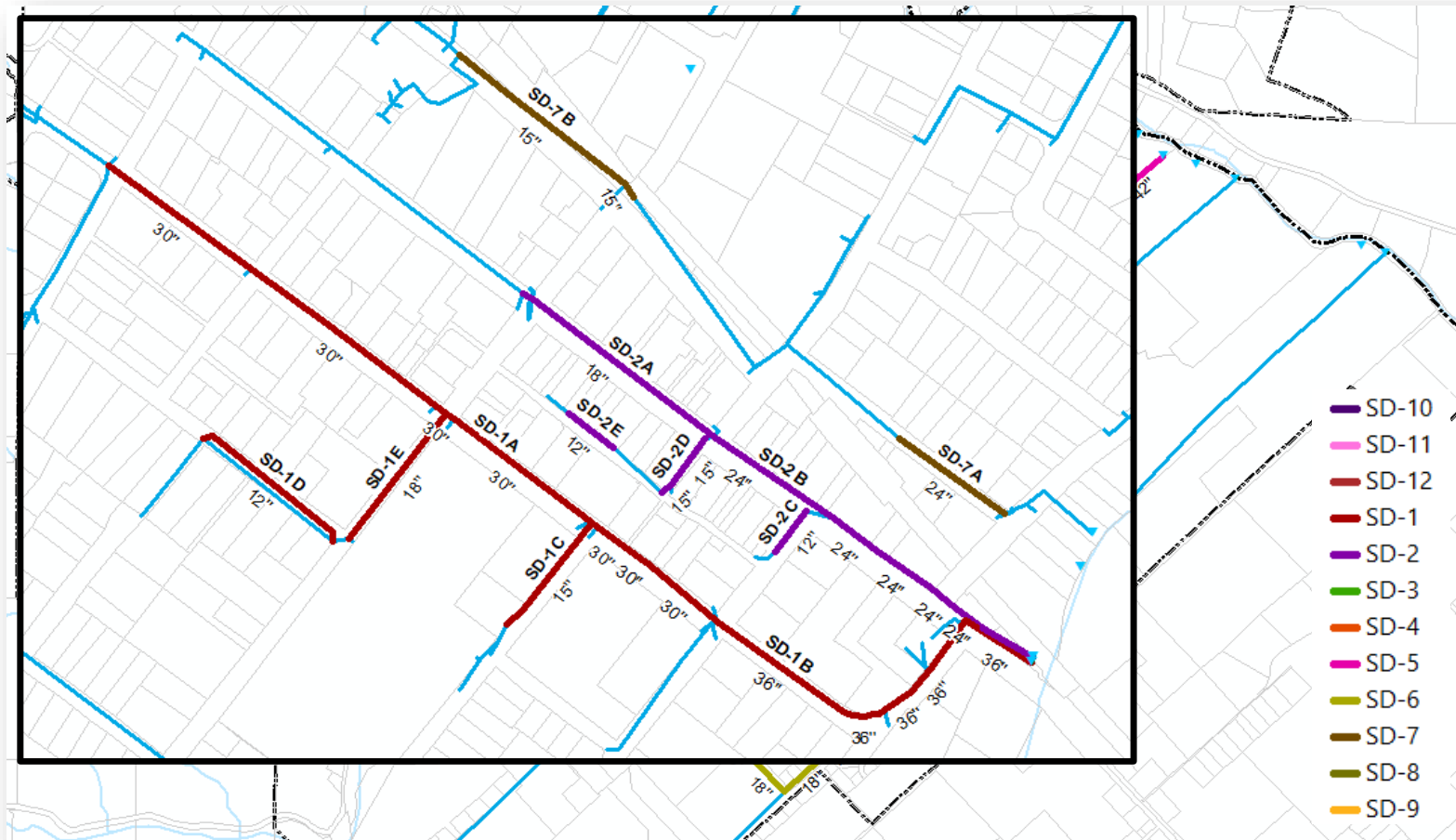
// 17,900 LF of projects were identified for the 10-Year Storm, and 5,300 LF of projects were identified for the 100-Year Storm



// The proposed improvements were broken down into major projects



// The proposed improvements were broken down into major projects



// Preliminary Capital Project Costs

Projects	Description	Total Project Costs (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

// Preliminary capital project costs

Projects	Phase 1 (2021-2025) \$Million	Phase 2 (2026-2030) \$Million	Phase 3 (2031-2035) \$Million	Phase 4 (2036-2040) \$Million
Hydraulic Constraints	\$3.1	\$4.7	\$2.8	\$1.1
Rehabilitation & Replacement	\$0.7	\$1.8	\$3.0	\$1.9
Total CIP	\$3.9	\$6.5	\$5.8	\$3.0
\$/Year	\$0.78	\$1.3	\$1.2	\$0.6

Overall CIP

// 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	\$5.0	\$3.9	\$1.2	\$1.2
Storm Drainage	\$3.9	\$6.5	\$5.8	\$3.0
Total CIP	\$22.5	\$12.1	\$8.5	\$6.7
\$/Year	\$4.5	\$2.4	\$1.7	\$1.3

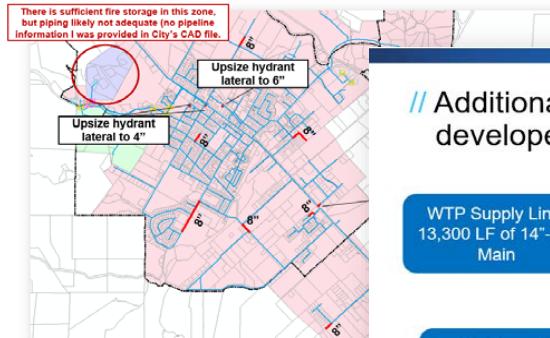
Summary

// The existing water system improvements generally include fire flow and risk based projects

// The existing storage analysis showed there is generally sufficient storage capacity to meet current peak demands

Zone	ADD (mgd)	MDD (mgd)	Rqd. Operational Storage, 25% of MDD (MG)	Rqd. Emergency Storage, 75% of MDD (MG)
Zone 1 & 2	1.375	2.498	0.62	1.87
Zone 3	0.013	0.025	0.01	0.02
Zone 4	0.055	0.101	0.03	0.08

// 4,900 LF of pipeline upgrades were developed to mitigate remaining deficiencies



// Additional recommendations were developed based on risk

WTP Supply Line,
13,300 LF of 14"-24"
Main

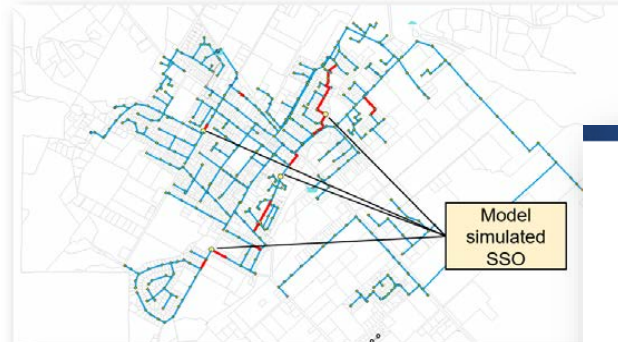
System-wide
Rehabilitation and
Replacement?

Rutherford Main
Replacement, 19,700
LF of 12" Main

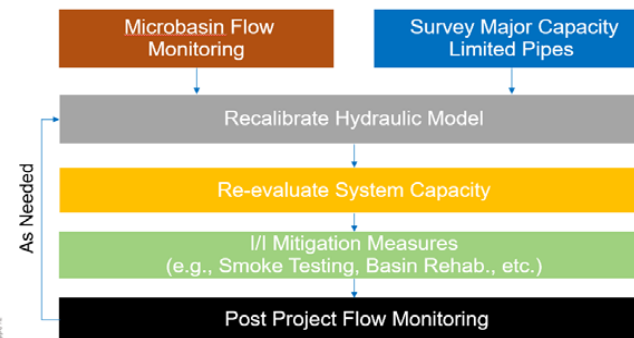


// The existing sewer system showed high rates of I/I with areas of surcharging and SSOs during PWWF conditions

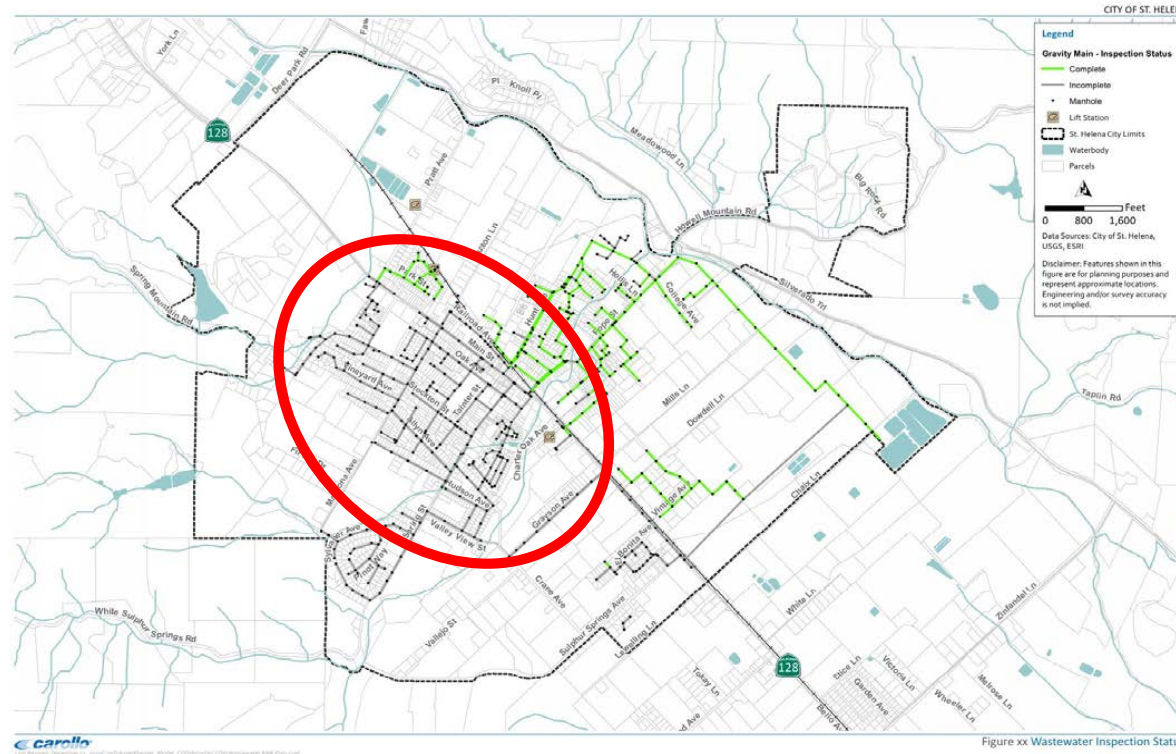
// The existing 10-year storm event simulated 5,900 LF of deficient sewers and SSOs at 5 locations



// A programmatic I/I reduction & rehab program could potentially mitigate the need for costly pipeline upgrades



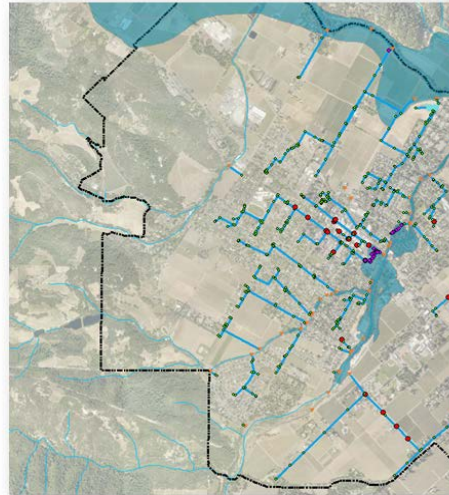
CCTV inspection program needs to include additional older areas of City's system



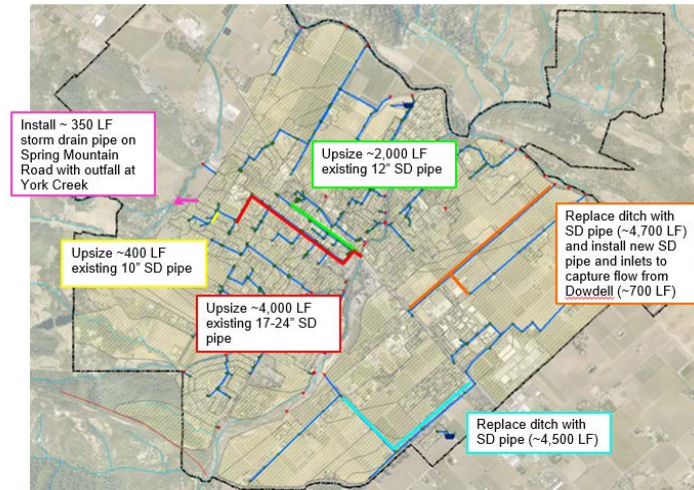
Phased CCTV program to inspect remaining 12 miles of sewer. ~\$220k

// The existing storm drainage system showed areas of flooding throughout the system

// Areas of flooding were shown by the 10-year storm simulation



// Potential improvement concepts were developed to mitigate simulated flooding



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