



City of St. Helena
Water and Wastewater Advisory Committee Special Meeting
Thursday, June 18, 2026 @ 10:30 AM
City Hall - Main Conference Room
1088 College Ave, St. Helena CA

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.

Members of the public and other parties are welcome to email their comments to the Staff Liaison at rwhite@cityofsthenelena.gov. All public comments must be received three hours prior to the meeting. Public comments received after the deadline will be attached to the item the next business day or soon thereafter. Public comments will not be read out loud but will be publicly available and attached to the online agenda.

1. CALL TO ORDER

2. ROLL CALL

Chair: Brent Randol Vice Chair: Garry Rose Committee Members: Jay Kouba,
Mario Trinchero, Peter White
Alternate Member: Carl Myers
Staff Liaison: Joe Leach, Assistant City Manager/Public Works Director/City
Engineer

3. PUBLIC FORUM

An opportunity for the public to directly address the Committee on items of interest to the public that are not listed on the agenda. Any person addressing the Committee should provide his or her name and address, and limit comments to four minutes. Because of restrictions imposed by the Brown Act, the Committee may not engage in substantive discussion, nor take action on matters not described on the agenda.

4. REPORTS BY STAFF/COMMITTEE

Reports by staff and/or committee on items of general interest. Brief questions for clarification may be posed and answered, and Committee 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 Water and Wastewater Advisory Committee.

4.1. Water/Wastewater Operations Update

Prepared By: Michele Ferrell, CPO - Water & Carlos Uribe, Interim Operations
Manager

5. CONSENT ITEMS

5.1. Water and Wastewater Advisory Committee Meeting Minutes of May 21, 2026

6. OLD BUSINESS

6.1. Water & Wastewater Capital Improvement Projects Disposition

Prepared By: Joseph Leach, Director of Public Works

7. NEW BUSINESS

7.1. SCADA Assessment Report

Prepared By: Bruce Zaeni, Project Manager

7.2. Resident Notification Protocols for Water System Operations

8. SUBCOMMITTEE UPDATES

8.1. Water Quality

Prepared By: Members Jay Kouba and Peter White

8.2. Water Security

Prepared By: Member Jay Kouba

8.3. Preparation of Water and Wastewater Rate Study

Prepared By: Vice Chair Garry Rose and Member Mario Trincherro

9. FUTURE AGENDA ITEMS

9.1. Discussion of Decommissioning of Lower Reservoir

9.2. Discussion of Alternate Energy Options at Water and Wastewater Facilities

9.3. Water Management Plan Chapter Reviews

10. ADJOURNMENT

The next Water and Wastewater Advisory Committee Meeting is scheduled for TBD.

This agenda was posted at City Hall, 1088 College Avenue, St. Helena on June 15, 2026.

Rebecca White, Administrative Assistant

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.

Water Leaks 6/2025 to 6/2026

Date	Size	Location	Type	Method of ID	Approx GPM	Notes
6/2/2025	1"	Quail ct.	Service line	Customer	10	
6/19/2025	2"	Madron knoll	Service line	Customer	20	
6/20/2025	1"	Quail Ct	Sevice line	Leak Detect	20	
6/23/2025	1"	Quail ct	Service line	Leak Detect	15	
7/8/2025	2"	Davis ln	Water main	Leak Detect	15	
8/12/2025	12"	Main st (Gotts)	Transmission	Staff/Visual	10	2 pinholes in close proximity
10/14/2025	3/4"	Chiles	Service line	Staff/Visual	10	
10/21/2025	2"	Mountain view	Water main	Customer	10	old galv.
10/24/2025	12"	61 Main st	Transmission	Visual	15/10	2 pinholes proximity
10/31/2025	3/4"	Starr	Service line	Customer	15	
11/17/2025	1"	Quaill ct	Service line	Customer	20	2 pinholes
12/5/2025	12"	595 Main st	Transmission	Staff/Visual	10	
12/18/2025	12"	709 Main st	Transmission	Staff/Visual	10	
2/23/2026	2"	Inglewood	warf hydrant line	Customer	15	broken elbow
5/6/2026	12"	929 Main st	Transmission	Staff/Visual	15/10/5	3 pinholes

Evaluation of Ferric Sulfate as an Alternative Coagulant to Alum at the LASWTP

Issam Najm, Ph.D., P.E.

Vice President

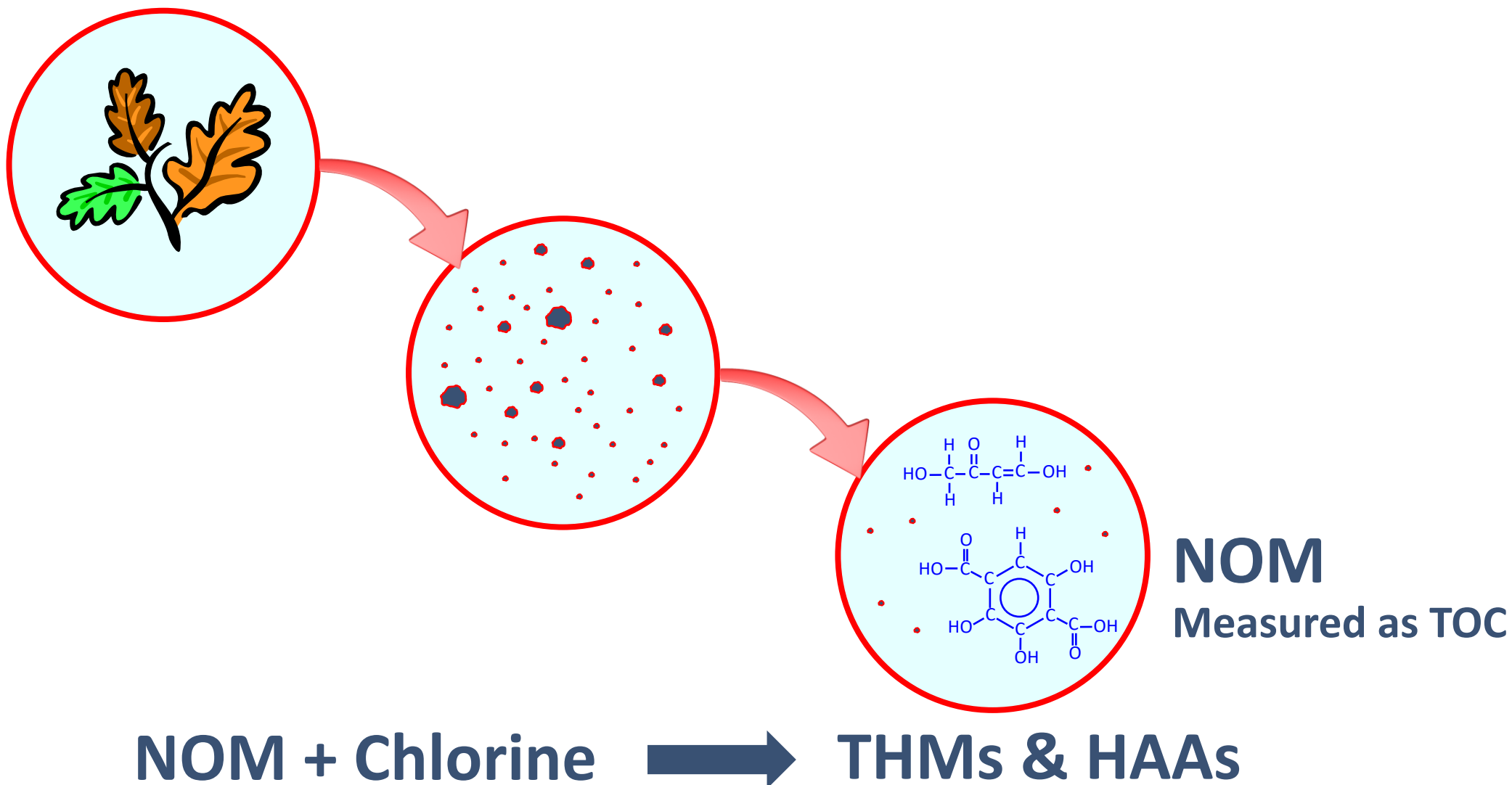
Hazen and Sawyer



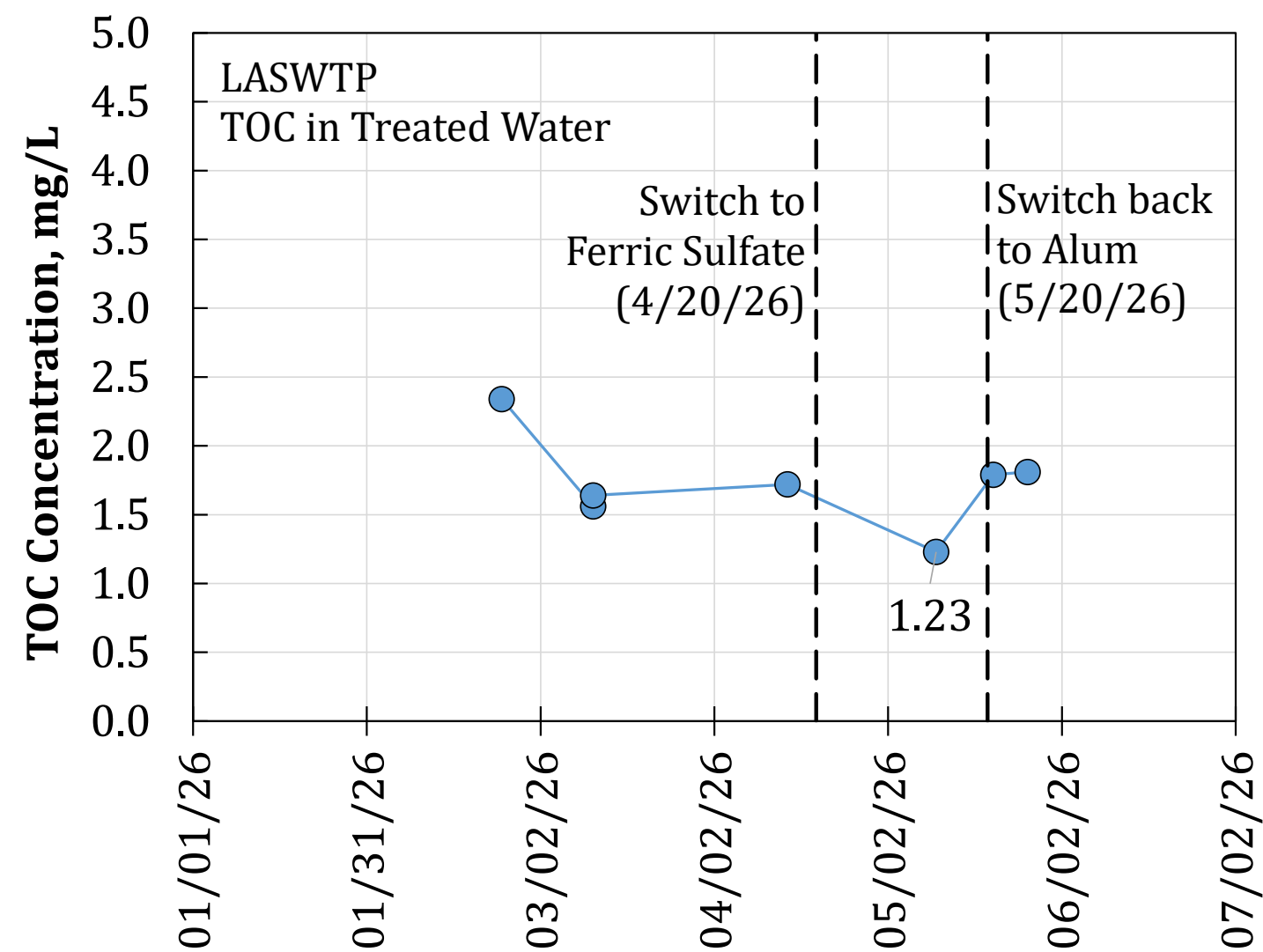
Water/Wastewater Advisory Committee Meeting

June 18, 2026

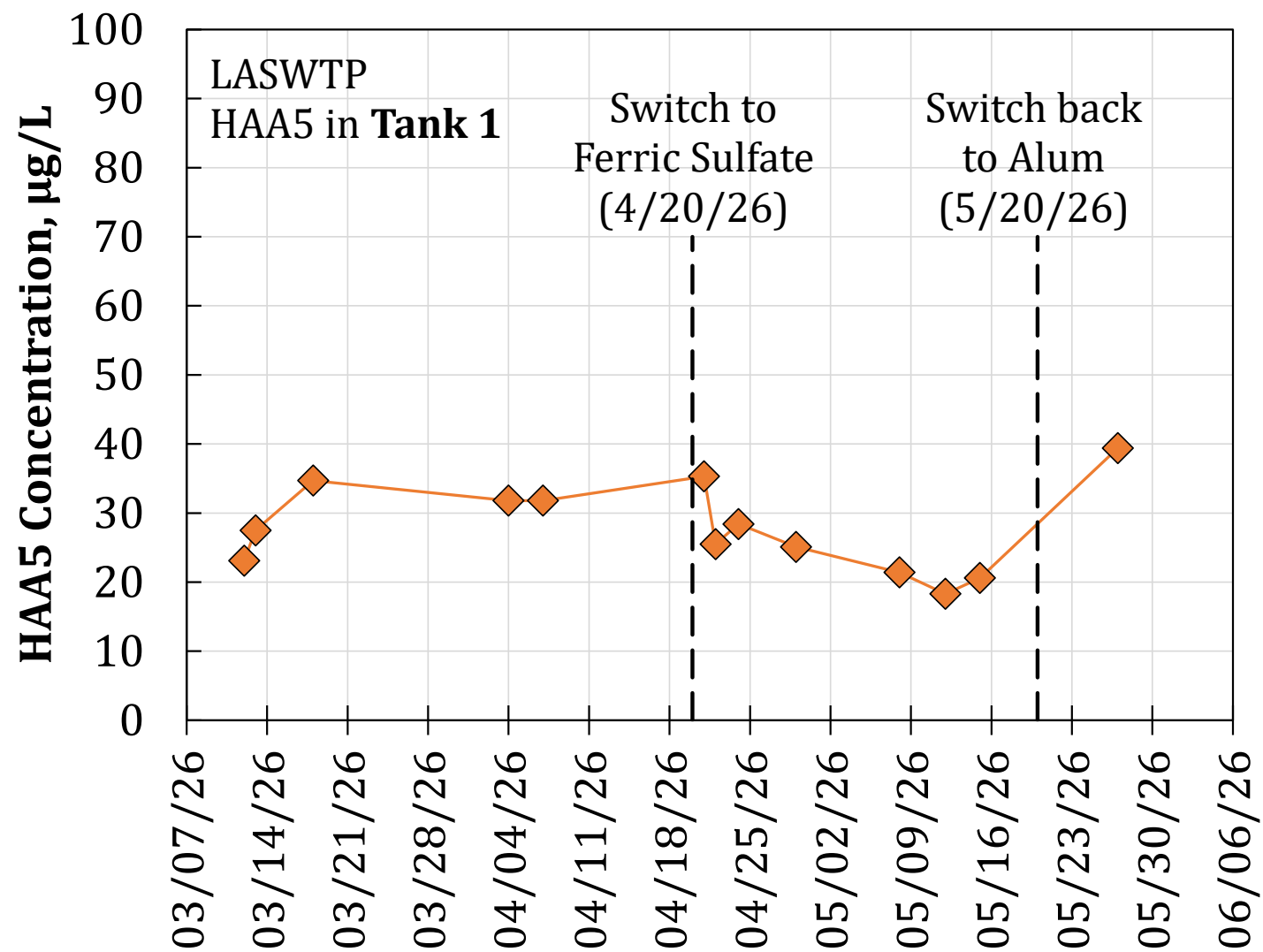
Natural Organic Matter (NOM)



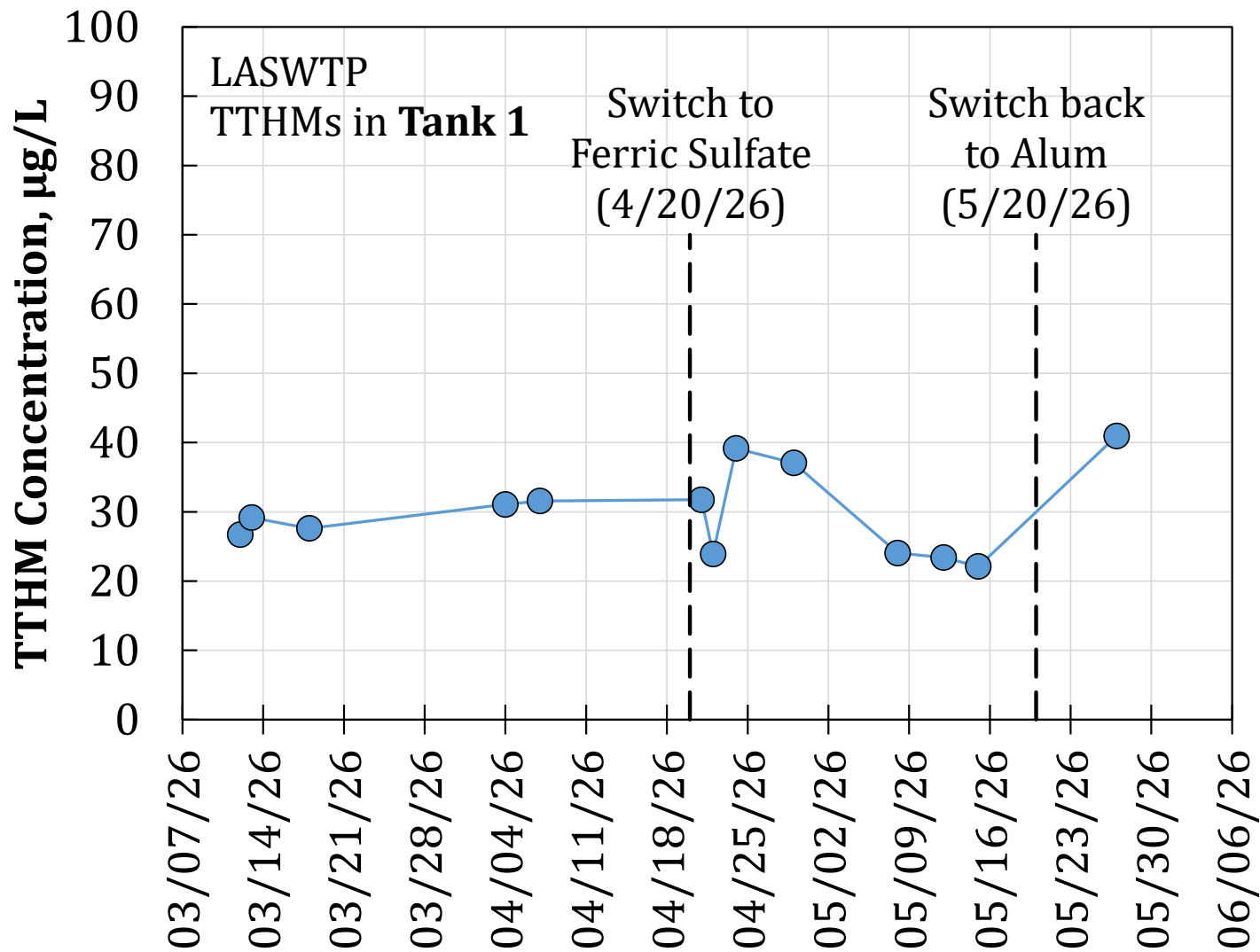
TOC in LASWTP Treated Water



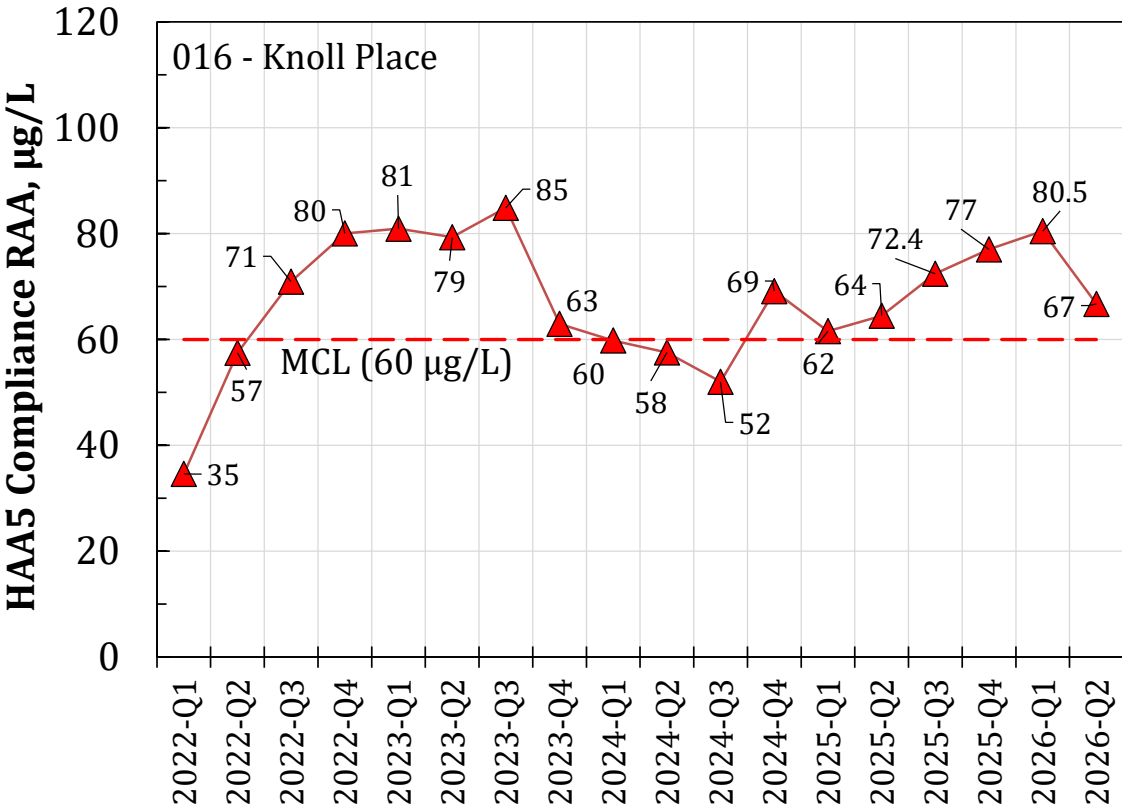
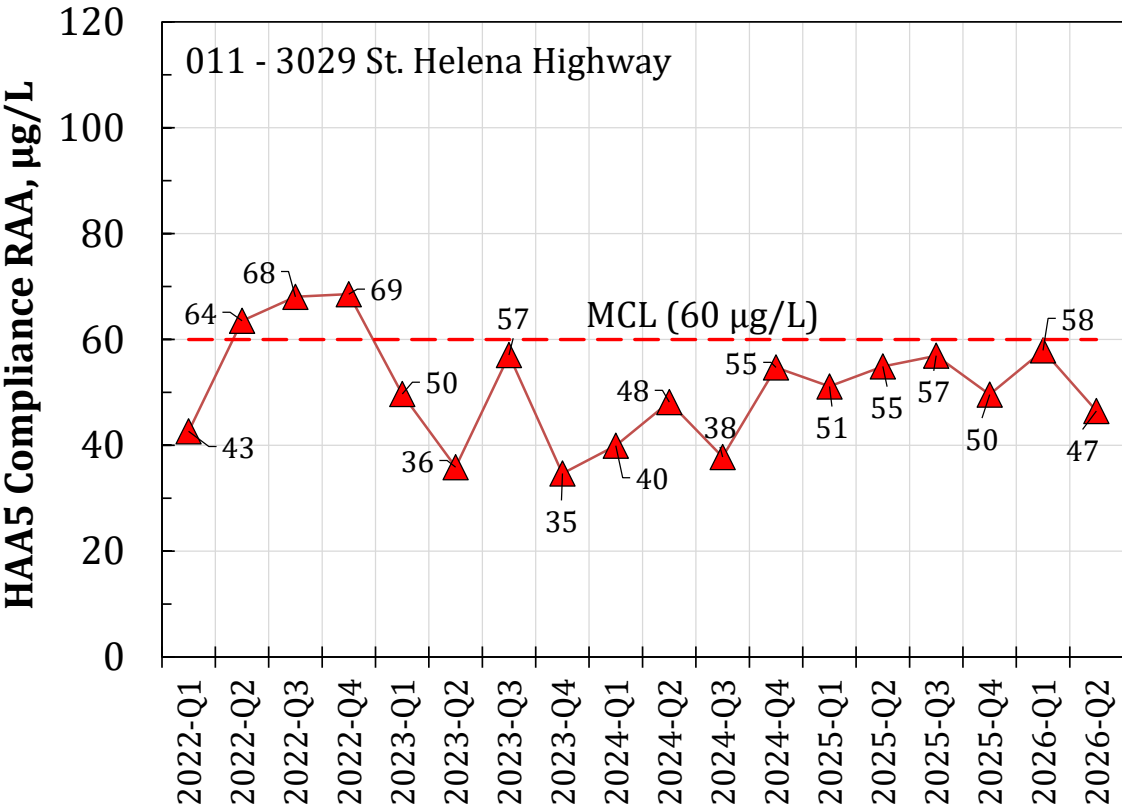
HAA5 at Tank 1



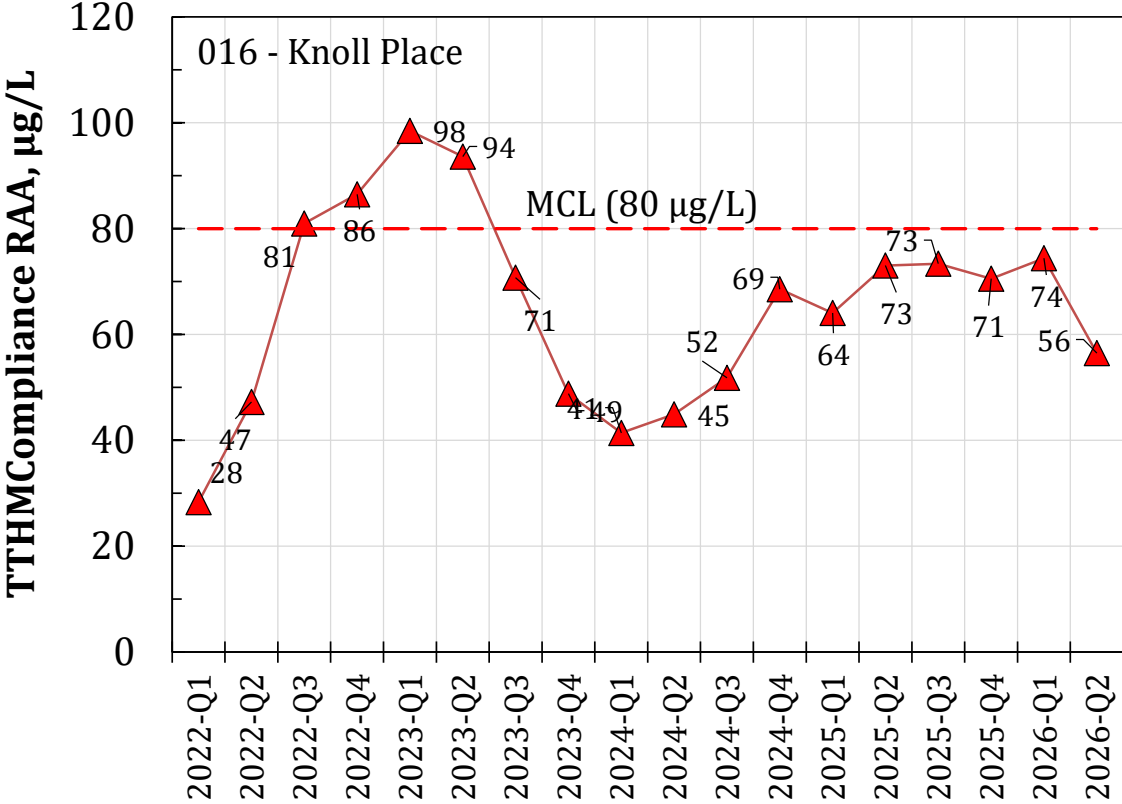
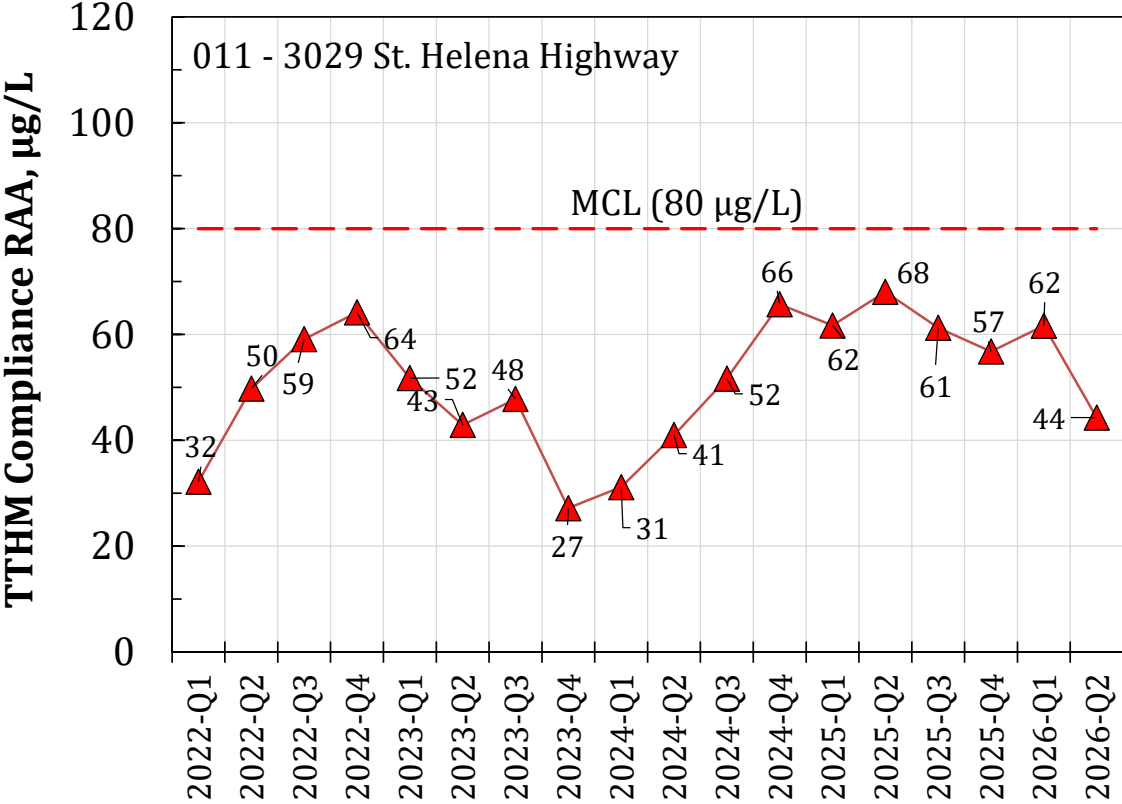
TTHMs at Tank 1



Regulatory Compliance Levels – HAA5



Regulatory Compliance Levels – TTHMs



Bottom Line

- 💧 Ferric sulfate achieved lowest TOC concentration in the treated water to date
- 💧 DBPs in Tank 1 water were lower during ferric testing
- 💧 Regulatory DBP levels in Q2 were significantly lower than Q1
- 💧 Ferric sulfate is a better coagulant to use than Alum

Thank You

Questions?

INajm@hazenandsawyer.com



MINUTES
City of St. Helena
Special Water and Wastewater Advisory Committee Meeting
Thursday, May 21, 2026 @ 10:30 AM
City Hall Main Conference Room
1088 College Avenue, St. Helena CA

1. CALL TO ORDER

Chair Randol called the meeting to order at 10:30a.m.

2. ROLL CALL

Present: Chair Brent Randol, Vice Chair Garry Rose, Member Jay Kouba, Member Mario Trinchero, Member Peter White

Absent: Alternate Member Carl Myers

3. PUBLIC FORUM

An opportunity for the public to directly address the Committee on items of interest to the public that are not listed on the agenda. Any person addressing the Committee should provide his or her name and address, and limit comments to four minutes. Because of restrictions imposed by the Brown Act, the Committee may not engage in substantive discussion, nor take action on matters not described on the agenda.

Public comment was opened and no comments were received. Public comment was closed.

4. REPORTS BY STAFF/COMMITTEE

Reports by staff and/or committee on items of general interest. Brief questions for clarification may be posed and answered, and Committee 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 Water and Wastewater Advisory Committee.

Carlos Uribe, Operations Manager, provided a report on the distribution system, including items such as flushing and repairs, from the beginning of the calendar year.

4.1. Water Treatment Plant Operations Update

Prepared By: Michele Ferrell, CPO - Water

Michele Ferrell, CPO, provided a report on operations at the water treatment plant, including information on the ferric test pilot program.

Public comment was opened and comments were received from Kelly Wheaton. Public comment was closed.

5. CONSENT ITEMS

5.1. Water and Wastewater Advisory Committee Meeting Minutes of April 9, 2026.

Member White moved to approve the April minutes.

Member Trinchero seconded the motion.

Chair Randol abstained from the vote and all others voted in favor of approving the minutes.

6. OLD BUSINESS

7. NEW BUSINESS

7.1. Review and Discussion of Draft Water Management Plan Chapters 1 & 3

Prepared By: Monique Day, West Yost

Monique Day from West Yost presented draft chapters of the Water Management Plan.

Public comment was opened and comments were received from Kelly Wheaton. Public comment was closed.

7.2. Discussion of Recent Drinking Water Notice Regarding HAA Exceedance

Prepared By: Joseph Leach, Director of Public Works

Director Joe Leach discussed the HAA Exceedance letter that was sent to water customers.

Public comment was opened and comments were received from Kelly Wheaton. Public comment was closed.

8. SUBCOMMITTEE UPDATES

8.1. Water Quality

Prepared By: Jay Kouba & Peter White

The subcommittee did not have a report.

8.2. Water Security

Prepared By: Jay Kouba

Member Kouba discussed reviewing the water contract with the City of Napa and potential strategies for water usage.

8.3. Preparation of Water and Wastewater Rate Study

Prepared By: Garry Rose & Mario Trinchero

Member Rose discussed the City of Napa's potential rate increases in coming years, the effects it may have on St. Helena rate payers, and potential strategies.

Public comment was opened and comments were received by Kelly Wheaton and Tom Belt. Public comment was closed.

9. FUTURE AGENDA ITEMS

9.1. Discussion of Decommissioning of Lower Reservoir

9.2. Discussion of Alternate Energy Options at Water and Wastewater Facilities

10. ADJOURNMENT

The next Water and Wastewater Advisory Committee meeting is scheduled for June 18, 2026.

Chair Randol adjourned the meeting at 12:12p.m.

APPROVED:

Brent Randol, Chair

ATTEST:

Joe Leach, PE, Staff Liaison

FY 26 through FY 28
Capital Improvement Plan
 St Helena, CA
Projects By Strategic Driver

Strategic Driver	Project #	Priority	FY 26	FY 27	FY 28	Total
Capability						
Model Update and System Analysis	S26-01	2		50,000		50,000
Asset Management & Computerized Maintenance & Management System Development/Implementation	S26-02	2		110,099		110,099
Retrofit/Deploy SMART water meters	W24-04	1	5,000			5,000
Capability Total			5,000	160,099	0	165,099
Compliance						
High Priority Pipeline Replacement	S24-02	1	255,600		255,600	511,200
2nd Tier High Priority Pipeline Replacement	S26-05	2	7,800	189,125		196,925
WWTP Phase 1 Upgrades	S-52	1	1,213,100			1,213,100
Bell Canyon Dam DSOD Analysis/Improvements	W24-11	1	100,000	2,767,684		2,867,684
Bell Canyon Valve House Replacement	W-85	1	937,955	320,000	177,964	1,435,919
Lower Reservoir Rehab	W-108	2		50,000		50,000
Bell Canyon Intake Tower Replacement	W-109	1		100,000	4,900,000	5,000,000
Compliance Total			2,514,455	3,426,809	5,333,564	11,274,828
Infrastructure						
Replace 1% of Sewer Mains Annually	S18-70	1	944,639	495,361		1,440,000
Crinella Pump Station Upgrades	S18-71	1	603			603
Flow Monitoring Program	S25-01	1	60,000			60,000
WWTP Pond Cleaning, Decommissioning, and Repurpose	S27-01	1		500,000	500,000	1,000,000
WTP Condition Assessment	W18-111	1	1,822			1,822
Napa Intertie Pipeline Replacement	W25-01	1	6,092,269			6,092,269
Water Treatment Plant Transmission Main Replacement	W25-02	1		7,400,084		7,400,084
PWRR-1 yr 6-10 Water Main Annual Replacement Program Allowance	W29-02	1			239,157	239,157
Spring Mountain Pressure Zone Improvements (Holmes Tank Upgrade)	W-86	2	100,000		3,515,968	3,615,968
Tank 2 Rehabilitation	W-101	1	564,457			564,457
Infrastructure Total			7,763,790	8,395,445	4,255,125	20,414,360
Quality						
Water System SCADA Improvements	W18-113	1	657,853			657,853
Disinfection By Products Project	W24-12	1		379,288	391,425	770,713
Water Main Pipeline Cleaning Program	W26-04	1		152,000		152,000
Quality Total			657,853	531,288	391,425	1,580,566
Resilience						
Replace Mains <6" in Diameter	W18-118	1	327,702	338,189	349,011	1,014,902

Strategic Driver	Project #	Priority	FY 26	FY 27	FY 28	Total
Water Distribution Fire Flow Improvements	W24-01	1		156,000		156,000
Water Treatment Plant Microgrid/SCADA Upgrades	W26-01	2	200,000	2,300,000		2,500,000
	Resilience Total		527,702	2,794,189	349,011	3,670,902
	GRAND TOTAL		11,468,800	15,307,830	10,329,125	37,105,755

FY 26 through FY 28
Capital Improvement Plan
 St Helena, CA
Projects By Year & Priority

Project Name	Department	Project #	Priority	Project Cost
FY 26				
Priority High				
Oak Avenue Storm Drain Rehab	Public Works	D24-01	1	2,502,369
Downtown Sidewalk Improvements Phase 1A	Public Works	R18-81	1	900,000
Sulphur Creek Sediment Removal	Public Works	R19-04	1	10,000
Pavement Restoration FY 25 Design/FY 26 Construction	Public Works	R25-79	1	767,752
Bike Paths/Trails - Measure U Equivalent Funds	Public Works	R26-01	1	10,000
Measure U Maintenance of Effort	Public Works	R26-03	1	296,791
Spring Street/Highway 29 Intersection Project	Public Works	R26-04	1	500,000
Pavement Restoration FY 26 Design/FY 27 Construction	Public Works	R26-79	1	136,500
Replace 1% of Sewer Mains Annually	Public Works	S18-70	1	944,639
Crinella Pump Station Upgrades	Public Works	S18-71	1	603
High Priority Pipeline Replacement	Public Works	S24-02	1	255,600
Flow Monitoring Program	Public Works	S25-01	1	60,000
CDBG Sewer Repair Project	Public Works	S26-03	1	125,000
WWTP Effluent Pump Station	Public Works	S26-04	1	375,282
WWTP Phase 1 Upgrades	Public Works	S-52	1	1,213,100
WTP Condition Assessment	Public Works	W18-111	1	1,822
Water System SCADA Improvements	Public Works	W18-113	1	657,853
Replace Mains <6" in Diameter	Public Works	W18-118	1	327,702
Retrofit/Deploy SMART water meters	Public Works	W24-04	1	5,000
Bell Canyon Dam DSOD Analysis/Improvements	Public Works	W24-11	1	100,000
Napa Intertie Pipeline Replacement	Public Works	W25-01	1	6,092,269
Water Treatment Plant Modular Home	Public Works	W26-03	1	390,671
Bell Canyon Valve House Replacement	Public Works	W-85	1	937,955
Tank 2 Rehabilitation	Public Works	W-101	1	564,457
			Total for: Priority 1	17,175,365
Priority Low				
Repaint Fire Station # 1	Fire	C20-02	3	25,000
			Total for: Priority 3	25,000
Priority Medium				
Oak Avenue Rehabilitation	Public Works	R24-02	2	0
Napa Valley Vine Trail - Calistoga to St. Helena	Public Works	R26-05	2	361,000
Mills Lane Realignment and Intersection Improvements	Public Works	R26-06	2	91,000
2nd Tier High Priority Pipeline Replacement	Public Works	S26-05	2	7,800
Water Treatment Plant Microgrid/SCADA Upgrades	Public Works	W26-01	2	200,000
Spring Mountain Pressure Zone Improvements (Holmes Tank Upgrade)	Public Works	W-86	2	100,000
			Total for: Priority 2	759,800
			Total for FY 26	17,960,165
FY 27				
Priority High				
Parks & Recreation Master Plan	Public Works/ Community Services	C24-01	1	5,149
Sulphur Creek Sediment Removal	Public Works	R19-04	1	10,000
Napa Valley Vine Trail - Yountville to St Helena	Public Works	R26-02	1	300,000
Measure U Maintenance of Effort	Public Works	R26-03	1	302,727

Project Name	Department	Project #	Priority	Project Cost
Pavement Restoration FY 26 Design/FY 27 Construction	Public Works	R26-79	1	1,000,000
Downtown Sidewalk Improvements Phase 1B	Public Works	R26-81	1	2,500,000
Pavement Restoration FY 27 Design/FY 28 Construction	Public Works	R27-79	1	80,000
Replace 1% of Sewer Mains Annually	Public Works	S18-70	1	495,361
WWTP Pond Cleaning, Decommissioning, and Repurpose	Public Works	S27-01	1	500,000
Replace Mains <6" in Diameter	Public Works	W18-118	1	338,189
Water Distribution Fire Flow Improvements	Public Works	W24-01	1	156,000
Bell Canyon Dam DSOD Analysis/Improvements	Public Works	W24-11	1	2,767,684
Disinfection By Products Project	Public Works	W24-12	1	379,288
Water Treatment Plant Transmission Main Replacement	Public Works	W25-02	1	7,400,084
Water Main Pipeline Cleaning Program	Public Works	W26-04	1	152,000
Bell Canyon Valve House Replacement	Public Works	W-85	1	320,000
Bell Canyon Intake Tower Replacement	Public Works	W-109	1	100,000
Total for: Priority 1				16,806,482
Priority Medium				
Oak Avenue Rehabilitation	Public Works	R24-02	2	2,000,000
Mills Lane Realignment and Intersection Improvements	Public Works	R26-06	2	25,000
Model Update and System Analysis	Public Works	S26-01	2	50,000
Asset Management & Computerized Maintenance & Management System Development/Implementation	Public Works	S26-02	2	110,099
2nd Tier High Priority Pipeline Replacement	Public Works	S26-05	2	189,125
Water Treatment Plant Microgrid/SCADA Upgrades	Public Works	W26-01	2	2,300,000
Lower Reservoir Rehab	Public Works	W-108	2	50,000
Total for: Priority 2				4,724,224
Priority None				
Library Roof Replacement	Public Works	C27-01		740,000
Library Exterior Improvements	Public Works	C27-02		5,000
Library Patio Demo/Regrading	Public Works	C27-03		14,000
Library Plumbing	Public Works	C27-05		38,000
Library Building Systems & Interior Improvements	Public Works	C27-06		25,000
Corp Yard Structural Rehabilitation	Public Works	C27-07		12,000
Corp Yard Exterior Improvements	Public Works	C27-08		1,000
Fire Station Roof Replacement	Public Works	C27-10		5,000
Fire Station Exterior Improvements	Public Works	C27-11		1,000
Fire Station Building Systems & Interior Improvements	Public Works	C27-12		10,000
Carnegie Building Structural Rehabilitation	Public Works	C27-13		75,000
Carnegie Building Misc. Roof Repairs	Public Works	C27-14		1,000
Total for: Priority				927,000
Total for FY 27				22,457,706

FY 28

Priority High

Sulphur Creek Sediment Removal	Public Works	R19-04	1	10,000
Napa Valley Vine Trail - Yountville to St Helena	Public Works	R26-02	1	300,000
Measure U Maintenance of Effort	Public Works	R26-03	1	308,781
Pavement Restoration FY 27 Design/FY 28 Construction	Public Works	R27-79	1	1,000,000
Pavement Restoration FY 28 Design/FY 29 Construction	Public Works	R28-79	1	80,000
High Priority Pipeline Replacement	Public Works	S24-02	1	255,600
WWTP Pond Cleaning, Decommissioning, and Repurpose	Public Works	S27-01	1	500,000

Project Name	Department	Project #	Priority	Project Cost
Replace Mains <6" in Diameter	Public Works	W18-118	1	349,011
Disinfection By Products Project	Public Works	W24-12	1	391,425
PWRR-1 yr 6-10 Water Main Annual Replacement Program Allowance	Public Works	W29-02	1	239,157
Bell Canyon Valve House Replacement	Public Works	W-85	1	177,964
Bell Canyon Intake Tower Replacement	Public Works	W-109	1	4,900,000
Total for: Priority 1				8,511,938
Priority Medium				
Mills Lane Realignment and Intersection Improvements	Public Works	R26-06	2	1,884,000
Spring Mountain Pressure Zone Improvements (Holmes Tank Upgrade)	Public Works	W-86	2	3,515,968
Total for: Priority 2				5,399,968
Priority None				
Library Exterior Improvements	Public Works	C27-02		23,000
Library Building Systems & Interior Improvements	Public Works	C27-06		207,000
Corp Yard Exterior Improvements	Public Works	C27-08		24,500
Corp Yard Building Systems & Interior Improvements	Public Works	C27-09		40,500
Fire Station Roof Replacement	Public Works	C27-10		50,000
Fire Station Exterior Improvements	Public Works	C27-11		12,500
Fire Station Building Systems & Interior Improvements	Public Works	C27-12		32,000
Carnegie Building Structural Rehabilitation	Public Works	C27-13		100,000
Carnegie Building Misc. Roof Repairs	Public Works	C27-14		26,500
Carnegie Building Exterior Improvements	Public Works	C27-15		15,000
Carnegie Building Mechanical & Plumbing Improvements	Public Works	C27-16		1,000
Total for: Priority				532,000
Total for FY 28				14,443,906
GRAND TOTAL				54,861,777



Agenda Report to the Water and Wastewater Advisory Committee

DATE:	June 18, 2026
SUBJECT:	SCADA Assessment Report
RECOMMENDED ACTION:	Review and Discuss the Report
STATEMENT OF THE PURPOSE:	The purpose of this Staff Report is to provide information about the results of condition assessment of the water system SCADA and review the Executive Summary provided and discuss the recommended improvements and sequencing.
FINANCIAL IMPACT:	TBD
PREPARED BY:	Bruce Zaeni, PE, Project Manager Joseph Leach, PE, Ass't CM/Dir of PW/City Engineer

BACKGROUND:

The purpose of this report is to present the results of a comprehensive assessment of the existing SCADA infrastructure and develop a preliminary basis for modernization. The assessment conducted by Cannon included documentation review, field site visits, operator interviews, and technical evaluation across the water system sites.

The assessment identified significant deficiencies across five primary areas. These findings are summarized below; additional technical details are provided in the executive summary and the full assessment report.

- Incomplete SCADA Documentation
- Monitoring and Instrumentation Gap
- Aging and Undocumented Communications Infrastructure
- Limited SCADA System Resilience
- Cybersecurity and Remote Access Improvement Needed

DISCUSSION:

The SCADA system and its infrastructure are aging and venerable to multiple points of failure. Since the production of compliant, reliable and quality water is an obligation, this study will allow us to identify and plan for necessary upgrades to maintain all three.

The Executive Summary report prepared by Cannon provides an overall view of the risks and lays out a methodical approach to categories of improvements to consider. To fit with available project funding and getting the most impactful improvements upfront, the recommendations are grouped into Phase one and Phase two projects:

Phase 1 - Immediate Monitoring Improvements, Network Readiness, System Resilience, and SCADA Standards Framework Development. This phase is estimated to take 9 to 12 months to complete and cost about \$1.26 million.



Phase 2 - SCADA Software Upgrade, Standardization Implementation, New Panels, and Full Site Integration. This phase is estimated to take 9 to 12 months to complete and cost about \$1.41 million.

The water system SCADA infrastructure requires meaningful investment to address documented deficiencies, monitoring gaps, aging communications hardware, cybersecurity and remote access needs, and system resilience risks. The recommended two-phase program provides a practical and prioritized path to a more reliable, secure, standardized, and maintainable SCADA system.

It is recommended that the committee review and discuss these recommendations in depth and advise the City's staff on how to proceed.

P. S. The full and detailed report can be made available to committee members in private, if so requested. However, for security reasons, we are not sharing the sensitive city water system information as part of this discussion.

ATTACHMENT:

Executive Summary Assessment Report prepared by Cannon dated June 11, 2026.



6/11/2026

Subject: Executive Summary of Water System SCADA Assessment Report

This Executive Summary has been prepared for presentation to the City of St. Helena Water/ Waste Water Committee . It presents findings, recommendations, implementation phasing, and preliminary cost estimates at a planning level. Certain technical details - including specific system software versions, network configurations, cybersecurity vulnerability information, and other sensitive implementation details - have been omitted from this summary for security reasons.

Introduction and Purpose

The City of St. Helena operates a water system supported by multiple active facilities, including a water treatment plant, storage tanks, booster pump stations, wells, and reservoirs. These facilities are monitored and controlled through a Supervisory Control and Data Acquisition (SCADA) system that has evolved over many years through incremental modifications.

The City retained Cannon to perform a comprehensive assessment of the existing SCADA infrastructure and develop a preliminary basis for modernization. The assessment included documentation review, field site visits, operator interviews, and technical evaluation across the water system sites.

This Executive Summary is intended to support Board's understanding of the existing SCADA system condition and to recommend an upgrade program, including the proposed phase breaks, near-term priorities, planning-level investment needs, and recommended next steps. It is organized as follows:

- Key SCADA Assessment Findings
- Recommended Improvements
- Preliminary Implementation Phasing
- Estimated Investment Needs
- Recommended Next Steps
- Final Summary

Key SCADA Assessment Findings

The assessment identified significant deficiencies across five primary areas. These findings are summarized below; additional technical detail is provided in the full assessment report.

Incomplete SCADA Documentation

The City's existing SCADA documentation is critically incomplete. Key missing or incomplete items include network and communications architecture diagrams, City-held PLC program backups, site-specific panel drawings, I/O lists, alarm documentation, historian tag records, and written operating procedures for alarms, communications failures, and emergency conditions. Documentation is necessary to troubleshoot and correct issues efficiently as they arise.

Monitoring and Instrumentation Gaps

Several facilities lack the instrumentation needed for effective remote monitoring, reporting, and informed management of the overall system. Representative gaps include remote level monitoring, water quality monitoring, booster pump status, chemical pump monitoring, flow monitoring, valve status/control, and intrusion/security monitoring at selected sites.

Without these signals, operators must drive to each site to collect the data. The data is used to monitor the water quality, volume of water in the tanks, well levels, flow volumes, etc.

Aging and Undocumented Communications Infrastructure

The existing communications system relies on cellular equipment that is approaching end-of-life. Several remote sites depend on a common communications path, and the current architecture is not fully documented, increasing troubleshooting difficulty and operational risk during communication failures.

Additionally, communication failures and glitches cause unreliability and distrust in the SCADA system. If it is not reliable, operators are less likely to use it and maintain it.

Limited SCADA System Resilience

The existing SCADA system has limited redundancy. A localized server, hardware, or power failure could significantly affect system-wide SCADA visibility. Additional system resilience is recommended to reduce the risk of a single failure affecting operations.

Cybersecurity and Remote Access Improvements Needed

Prior cybersecurity review identified the need for improved access controls, network segregation, and remote access security. The existing remote access arrangement does not provide the level of individual user accountability, authentication, or segregation recommended for long-term SCADA operation.

Recommended Improvements

Cannon recommends a two-phase design-build program to address the identified deficiencies. The recommended phase breaks are intended to deliver near-term operational value while preparing the City for a standardized, maintainable, and fully integrated SCADA system.



Phase 1 - Immediate Monitoring Improvements, Network Readiness, System Resilience, and SCADA Standards Framework Development

Phase 1 focuses on immediate monitoring improvements, SCADA network readiness, secure remote access, communications upgrades, system resilience, and development of the SCADA standards framework. Phase 1 is intended to improve near-term reliability and define the standards required for consistent implementation at new or modified sites, while full SCADA standardization and software modernization are implemented in Phase 2.

- Install high-priority instrumentation where existing PLCs and panels can support new signals.
- Relocate/upgrade network infrastructure and segregate the SCADA/OT network from non-SCADA systems.
- Establish secure, individually authenticated remote access.
- Deploy a private, managed cellular communications network to replace aging cellular hardware.
- Provide geographically separated SCADA server redundancy, with the secondary node located at the Corp Yard.
- Develop the SCADA Standards Framework for new or modified sites, including tag naming, PLC programming conventions, HMI object concepts, alarm conventions, historian/trending conventions, documentation expectations, and testing requirements.
- Develop initial network documentation, IP address records, communications testing procedures, and implementation records.

Estimated Duration: 9 to 12 months.

Phase 2 - SCADA Software Upgrade, Standardization Implementation, New Panels, and Full Site Integration

Phase 2 delivers the full SCADA modernization effort. This phase implements the standards framework developed during Phase 1 and completes the site integration, programming, graphics, alarming, trending, and closeout documentation needed for long-term maintainability.

- Upgrade SCADA software and implement standardized tag structures, HMI objects, alarm configuration, historian/trending, and documentation practices.
- Install new PLC/SCADA panels at sites or process areas requiring panel replacement, new control infrastructure, or full SCADA integration.
- Complete remaining instrumentation improvements across the water system sites.
- Implement standardized PLC programming across sites using the selected standard platform and programming approach.
- Fully integrate all sites into SCADA with consistent monitoring, alarms, trends, and operator displays.



- Complete factory acceptance testing, site acceptance testing, operator training, record documentation, and closeout.

Estimated Duration: 9 to 12 months.

Preliminary Implementation Phasing

The overall program is planned as two sequential design-build phases, each approximately 9 to 12 months in duration. The combined program is expected to span approximately 18 to 24 months from Notice to Proceed on Phase 1 through completion of Phase 2 closeout.

Phase	Key Activities	Duration
Phase 1 - Immediate Improvements / Network Readiness / Resilience / Standards Framework	High-priority instrumentation additions; network readiness and SCADA/OT segregation; secure remote access; private managed cellular communications deployment; geographically separated server redundancy; SCADA Standards Framework Development; initial network documentation and testing.	9-12 months
Phase 2 - SCADA Modernization / Standards Implementation / Full Integration	SCADA software upgrade; implementation of standardized PLC programming, tags, HMI objects, alarms, and trends; new PLC/SCADA panels at required sites/process areas; remaining instrumentation; full site integration; FAT/SAT, training, and closeout documentation.	9-12 months

Estimated Investment Needs

The following planning-level cost summary will be updated when cost development is complete. Cost estimates should be considered preliminary and are intended for planning and procurement authorization. Final costs will be refined during design-build procurement and final design.

Implementation Phase	Planning-Level Cost
Phase 1 - Immediate Improvements, Network Readiness, System Resilience, and SCADA Standards Framework Development	\$1,260,000

Implementation Phase	Planning-Level Cost
Phase 2 - SCADA Modernization, Standardization Implementation, New Panels, and Full Site Integration	\$1,410,000
Total Program	\$2,670,000

The detailed site-by-site planning table is provided below. Cost placeholders will be updated with planning-level estimates upon completion of cost development. Costs are expected to include appropriate contingency for unknown field conditions, design development, and procurement variability.

Preliminary Scope and Cost Estimates by Site

The following table summarizes the recommended phase break by facility or site. Phase 1 generally includes immediate improvements, network/security readiness, communications, redundancy, documentation, and standards definition. Phase 2 generally includes new standard panels, SCADA software modernization, implementation of standardized programming/HMI/alarming/trending, and full integration.

Facility / Site	Phase 1 Improvements	Phase 2 Improvements	Est. Phase 1 Cost	Est. Phase 2 Cost
Louis Stralla Water Treatment Plant	Network rack relocation; SCADA/OT network segregation; plant network/fiber readiness; secure remote access; documentation; communications readiness; SCADA server improvements as applicable.	Modify FCP panel to integrate PLC into SCADA; install local HMI in place of some of the original indicators.	\$390,000	\$85,000
Bell Canyon Reservoir Facilities	Repair/replace high-priority instrumentation where existing infrastructure can support it; restore valve SCADA integration; upgrade network communications add intrusion/security monitoring.	New PLC panels and programming.	\$110,000	\$330,000
Tank 1A	Add recirculation pump status; add intrusion/security monitoring.		\$0	\$20,000

Facility / Site	Phase 1 Improvements	Phase 2 Improvements	Est. Phase 1 Cost	Est. Phase 2 Cost
Holmes Tank	New level transmitter; water quality monitoring; intrusion/security monitoring; new PLC/SCADA panel; power source improvements as required; full SCADA integration.		\$180,000	\$0
Holmes Pump House	Install a new junction box to bring this site into SCADA via a new PLC panel at Elmhurst.		(See Elmhurst PS)	
Elmhurst Pump Station	New shared PLC/SCADA panel; new flow meter; pump control/status monitoring; intrusion/security monitoring; integration of Holmes Pump House signals; full SCADA integration.		\$165,000	\$0
Madrone Knoll Pump Station	New Radio, Antenna, SCADA programming.	New PLC and programming.	\$45,000	\$80,000
Meadowood Tanks	New Radio, Antenna, SCADA programming.	New PLC and programming.	\$35,000	\$120,000
Tank 2	New Radio, Antenna, SCADA programming.	New back pan with all new equipment and additional panel for Water Quality instrumentation.	\$35,000	\$110,000
Stonebridge Wells	New PLC Panel for the Wells monitoring and control.	Consolidate old Texas Instruments and Siemens PLCs into the new CompactLogix PLC and full SCADA integration.	\$90,000	\$195,000
Rutherford Pump Station	New Radio, Antenna, SCADA programming.	New PLC and programming.	\$55,000	\$70,000
Corp Yard	New SCADA workstation node; network connectivity; geographically separated redundant SCADA server.		\$30,000	\$0

Facility / Site	Phase 1 Improvements	Phase 2 Improvements	Est. Phase 1 Cost	Est. Phase 2 Cost
Systemwide	Private managed cellular communications; secure remote access; SCADA/OT segregation; server redundancy; SCADA Standards Framework Development; initial documentation and testing procedures.	SCADA software upgrade; standardized PLC/SCADA programming; standardized HMI objects, alarms, historian/trending, testing, training, and closeout documentation.	\$125,000	\$400,000

Recommended Next Steps

1. Authorize staff to proceed with Phase 1 design-build procurement.
2. City issues a Request for Proposals (RFP) for Phase 1 design-build services.
3. Begin development of SCADA documentation and the SCADA Standards Framework concurrent with Phase 1 design.
4. Coordinate private managed cellular communications setup and SCADA communications planning.
5. Award Phase 1 design-build contract and proceed with implementation.
6. Initiate Phase 2 scoping, cost refinement, and funding planning during or following Phase 1 implementation.

Final Summary

The City of St. Helena's water system SCADA infrastructure requires meaningful investment to address documentation deficiencies, monitoring gaps, aging communications hardware, cybersecurity and remote access needs, and system resilience risks. The recommended two-phase program provides a practical and prioritized path to a more reliable, secure, standardized, and maintainable SCADA system.

The near-term priorities in Phase 1 - improving monitoring coverage, upgrading communications, segregating the SCADA network, improving remote access, developing SCADA standards, and adding geographically separated server redundancy - can provide immediate operational value while preparing the City for full modernization. Phase 2 will implement the SCADA software upgrade, new panels, standardized programming, consistent HMI/alarming/trending, and full site integration needed to support the next generation of water system operation.

SCADA SYSTEM ASSESSMENT

City of St. Helena

Board Presentation | June 2026 | Prepared by Cannon



Purpose of Assessment

1

Evaluate

Assess the condition and reliability of the City's water SCADA system.

2

Identify Risk

Document operational risks, monitoring gaps, and cybersecurity needs.

3

Prioritize

Organize improvements into practical design-build phases.

4

Support Decisions

Provide planning-level scope, schedule, and budgeting information for Board consideration.

Goal: improve reliability, operator visibility, security, and long-term maintainability.

Assessment Findings – What We Found



Monitoring Gaps

Several sites have no remote level, flow, or water quality monitoring. Several sites, including Holmes and Elmhurst, have no remote SCADA presence. Operators must drive to check conditions which hinders their daily efficiency.



Cybersecurity Posture

The City's prior Cyber Security Report identified the need for improved access controls and network segregation. These improvements are part of the recommended plan.



Aging Communications

Cellular routers at remote sites are reaching end-of-life and lack documentation. A single aggregation point creates system-wide risk if it fails.



Single Point of Failure

SCADA is running on a single server. A localized outage could eliminate visibility across the entire water system with no backup available.



Documentation Gaps

No network diagrams, PLC program backups, alarm lists, or operating procedures exist. System knowledge lives with specific staff, creating operational risk.

Bottom Line

The water system SCADA infrastructure requires focused investment to improve monitoring, modernize communications, and provide trustworthy and reliable operations for the community.

Site Improvements – What Will Change

1

Improve Monitoring

Add or integrate remote monitoring where operators currently have limited visibility.

2

Modernize Field Equipment

Replace priority PLC panels, backpans, communications equipment, and selected instrumentation.

3

Increase Resilience

Add redundant SCADA infrastructure and reduce single points of failure.

4

Improve Security

Segment the SCADA network and implement controlled, logged remote access.

5

Standardize Operations

Standardize tags, alarms, graphics, backups, documentation, and operator workflows.

Detailed site-by-site phase assignments are included in the backup slide and will be refined during final design.

Recommended Program – Two Design-Build Phases

PHASE 1

9–12 Months

Priority Improvements

- Priority panels, communications, and network improvements
- Redundant SCADA server infrastructure
- Add SCADA display at Corp Yard
- SCADA standards framework development for consistent near-term site integration
- High-priority instrumentation and site integration
- Cybersecurity, remote access, and documentation improvements
- Testing, commissioning, and operator training

Phase 1 adds reliability, visibility, and security.

PHASE 2

9–12 Months

Full Integration & Standardization

- Remaining PLC and panel modernization
- SCADA software upgrade and programming standardization
- Legacy signal cleanup and full site integration
- Final alarm, graphics, documentation, and closeout improvements

Phase 2 adds future maintainability and improved usability.

Preliminary Cost Estimates & Schedule

Cost estimates are at a planning level of accuracy ($\pm 30\%$) and include a 30% contingency. Costs will be refined during final design.

Phase 1

Priority Panels, Communications, Server Redundancy & SCADA

\$1,260,000

Phase 2

Remaining PLC Modernization & Full Site Integration

\$1,410,000

Total Program

Combined Planning-Level Estimate

\$2,670,000

Preliminary Implementation Schedule

M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 M11 M12 M13–24

Phase 1
9–12 months

Design → Procure → Install → Commission

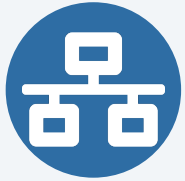
Phase 2
9–12 months

Months
13–24

Total Program Duration: approximately 18–24 months from Phase 1 Notice to Proceed through Phase 2 closeout.

SCADA Security – Protecting the System

The City's prior Cyber Security Report identified that the existing SCADA system needs improved access controls and network architecture. The recommended program directly addresses these concerns. Specific technical details are not included in this summary to protect system security.



Network Segregation

SCADA will be separated from the City's general IT network with controlled access boundaries, limiting exposure to unauthorized users.



Secure Remote Access

Remote access will be improved using individual named accounts, stronger authentication, and access logging.



Redundant Architecture

A secondary SCADA server at the Corp Yard ensures operators maintain visibility even if the primary Treatment Plant location is affected by an outage.



Documentation & Backups

All PLC programs, network configurations, and system settings will be documented and backed up in City-controlled records — not solely with outside vendors.

Key Takeaways

- 1 Strong Foundation for Modernization:** The City's existing SCADA system supports operations at connected facilities and can be expanded and improved rather than replaced wholesale.
- 2 Monitoring Gaps Remain:** Several facilities need improved remote monitoring, communications, instrumentation, and SCADA integration.
- 3 Phase 1 Reduces Immediate Risk:** Priority panels for water quality monitoring, communications, server redundancy, remote access, and documentation improvements come first.
- 4 Phase 2 Completes Standardization:** Remaining PLC modernization, SCADA software upgrades, legacy cleanup, alarms, graphics, and closeout follow.
- 5 Outcome:** Improved reliability, operator visibility, alarm response, resilience, and long-term maintainability.

Questions

City of St. Helena SCADA System Assessment

Backup – Site-by-Site Improvements

Facility/Site	Phase 1 Improvements	Phase 2 Improvements
Water Treatment Plant	Priority network, fiber, server, and selected panel improvements	Remaining panel improvements
Bell Canyon Facilities	Communications and SCADA integration improvements	PLC / panel modernization
Tank 1A	---	Recirc Pump status and security monitoring
Holmes Tank	New panel, level monitoring, water quality monitoring, and security monitoring	---
Holmes Pump House	New SCADA integration via new panel at Elmhurst	---
Elmhurst Pump Station	New shared panel, pump station integration, communications, and SCADA programming	---
Tank 2	Communications, water quality monitoring, and security improvements	PLC / panel modernization
Madrone Knoll Pump Station	Communications and SCADA improvements	PLC / panel modernization
Meadowood Tanks	Communications and SCADA improvements	PLC / panel modernization
Rutherford Pump Station	Communications and SCADA improvements	PLC / panel modernization
Stonebridge Wells	PLC / panel modernization for one (1) PLC	Migrate other two (2) PLCs
Corp Yard	Redundant SCADA server, network infrastructure, SCADA display	---
Systemwide	Communications, cybersecurity, documentation, and server redundancy	PLC/SCADA Programming Standardization

Phase assignments are preliminary and will be refined during final design based on funding, equipment availability, and operational sequencing.

Management of Change Procedure

A Management of Change (MOC) procedure is a structured, systematic process used to identify, evaluate, and safely authorize modifications to facilities, equipment, operations, or procedures. Its primary goal is to ensure that no unauthorized or unreviewed changes create safety, health, or environmental hazards.

The MOC Process Workflow

A standard MOC procedure generally follows these steps:

1. **Identification & Request:** An employee identifies a needed change and submits an MOC request form. This excludes simple "replacement-in-kind" repairs.
2. **Review & Risk Assessment:** A cross-functional team evaluates the proposed change for potential hazards, compliance violations, and operational impacts.
3. **Approval:** Authorized personnel or safety committees review the risk assessment and either approve, reject, or request modifications to the plan.
4. **Implementation:** The approved change is integrated following strict safety protocols.
5. **Pre-Startup Safety Review (PSSR):** Before going live, a final check confirms that equipment is installed correctly, hazards are mitigated, and employees are trained.
6. **Documentation & Closeout:** Operational documents, safety manuals, and standard operating procedures (SOPs) are updated and archived.