City of Alameda
Sewer System Management Plan

July 1, 2025 Resolution No. 16290

City Council Adoptions:
July 21, 2009 Resolution 14364
October 21, 2014 Resolution 14976

City WDID 2SSO10087
NPDES Permit No. CA0038474

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List of Abbreviations and Acronyms

Acronym	Definition
AMC	Alameda Municipal Code
AMIP	Asset Management Implementation Plan
BACWA	Bay Area Clean Water Agencies
BSF	Base Sewer Flow
CCTV	Closed Circuit Television
CD	Consent Decree
CIP	Capital Improvement Plan
City	City of Alameda
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
COF	Consequence of Failure
CPC	California Plumbing Code
CSTAC	Collection System Technical Advisory Committee
CWEA	California Water Environment Association
DS	Data Submitter
EBCSAC	East Bay Collection System Advisory Committee
EBMUD	East Bay Municipal Utility District
EPA	Environmental Protection Agency
FOG	Fats, Oils, Grease
FSE	Food service establishment
GIS	Geographical Information System
GWI	Groundwater Infiltration
HOA	Home Owners Association
I/I	Inflow / Infiltration
LOF	Likelihood of Failure
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program
MWWTP	Main Wastewater Treatment Plant – EBMUD
NPDES	National Pollution Discharge Elimination System

Acronym	Definition
OERP	Overflow Emergency Response Plan
O&M	Operation and Maintenance
OES	Office of Emergency Services
PLSD	Private Sewer Lateral Discharge
PWD	Public Works Department – City of Alameda
RDI/I	Rainfall-dependent infiltration and inflow
RWQCB	Regional Water Quality Control Board, San Francisco Bay Area
SCADA	Supervisory Control and Data Acquisition
SERP	Spill Emergency Response Plan
SHECAP	Sewer Hydraulic Evaluation and Capacity Assessment Plan
Spill	SSO or Sanitary Sewer Overflow
SSMP	Sewer System Management Plan or Plan
SWRCB	State of California Water Resources Control Board
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirements for Sanitary Sewer Systems
WQMP	Water Quality Monitoring Plan
WWF	Wet Weather Facility

1.0: Element 1 – Goals

1.1: SWB Requirements:

The goal of the Sewer System Management Plan (SSMP) is to provide a plan and schedule to: (1) properly manage, operate, and maintain all parts of the Enrollee's sanitary sewer system(s), (2) reduce and prevent spills, and (3) contain and mitigate spills that do occur.

The Plan must include a narrative Introduction section that discusses the following items:

a. Regulatory Context

b. Sewer System Management Plan Update Schedule

c. Sewer System Asset Overview

1.2: Regulatory Context

This Sewer System Management Plan (SSMP) describes the City of Alameda's (City's) wastewater collection system management activities. The purpose of these activities is to:

1. Maintain and improve the condition of the collection system infrastructure,
2. Control infiltration/inflow (I/I) and provide appropriate sewer capacity, and to
3. Minimize the number and impact of sanitary sewer spills that occur.

The State Water Resources Control Board (SWRCB) has previously issued statewide waste discharge requirements for sanitary sewer systems which include requirements for development of an SSMP. The State Water Board requirements were outlined in Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006 (WDR) and the Monitoring and Reporting Plan (MRP) WQ 2013-0058-Exec. These two SWRCB requirements were replaced on December 6, 2022, by SWRCB Order WQ 2022-0103-DWQ Statewide Waste Discharge Requirements, General Order for Sanitary Sewer Systems, which became effective for all enrolled agencies on June 5, 2023.

Wastewater generated in the City's collection system is conveyed to the EBMUD interceptor system, and is treated at EBMUD's Main Wastewater Treatment Plant (MWWTP) (WDID 2 19014001) located near the eastern terminus of the San Francisco-Oakland Bay Bridge. EBMUD also receives flows from six other "Satellite" collection system agencies: the cities of Albany, Berkeley, Emeryville, Oakland, and Piedmont, and the Stege Sanitary District.

The Regional Water Board first issued an NPDES permit to EBMUD in 1976 for the wet weather discharges from EBMUD's interceptors. This permit required EBMUD to eliminate the discharge of untreated overflows from its interceptors and to protect water quality in San Francisco Bay. The Regional Water Board issued similar permits in 1976 to members of the East Bay Communities, including the City of Alameda's NPDES NO. CA0038474.

The Regional Water Board has reissued the NPDES permits every 5 years with the most recent renewal in 2025. The City's permit can be located here: https://alamedaca.gov/public-works/public-works-key-documents.

During the 1980s, EBMUD and the seven Satellite agencies conducted studies to address the problem of overflows and bypasses of untreated wastewater that occurred during large wet weather events due to excessive infiltration and inflow (I/I) into the collection systems. These studies resulted in a long-term program of construction of collection system relief sewers and sewer rehabilitation (called the East Bay I/I Correction Program), and construction by EBMUD of improvements at the MWWTP as well as three new remote Wet Weather Facilities (WWFs) designed to store, provide primary-level treatment, and discharge flows that exceeded the capacity of its interceptor system during wet weather.

Over a period of 20 years, separated into multiple phases, the City installed relief lines, as well as removed and replaced sewer mains, manholes and lower laterals in targeted areas identified as being cost-effective for rehabilitation to reduce I/I. In addition, the City has carried out cyclic sewer rehabilitation projects on lines identified by the Maintenance Division as significantly deficient. Through the I/I Correction and Cyclic Sewer Rehabilitation programs, the City has rehabilitated or replaced about 27 miles of its gravity sewers and associated lower laterals (over 20 percent of the system) since 1987. Since 1988, the City has also implemented a private sewer lateral (PSL) certification program requiring the testing and/or repair or replacement of private (upper) sewer laterals at the time of property transfer. On January 1, 2015, the City joined the regional Private Sewer Lateral program implemented by EBMUD, per Consent Decree requirement.

In 2009, the U.S Environmental Protection Agency (EPA), State Water Resources Control Board (SWRCB), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) prohibited future discharges from the WWFs, and entered into a legal settlement with EBMUD to establish programs focused on reducing wet weather flows. Shortly thereafter, the EPA issued Findings of Violation and Orders for Compliance, also called Administrative Orders (AOs), to each of the seven EBMUD Satellite agencies requiring the development of specific plans and programs to reduce spills and control wet weather I/I into the collection systems. The AOs were subsequently replaced in 2011 by a Stipulated Order for Preliminary Relief (SO) with the EPA, SWRCB, and RWQCB. As required by the SO, the City has prepared various plans and reports related to the management, operation, and maintenance of its sewer system, including an Asset Management Implementation Plan (AMIP), Inflow Identification and Elimination Plan, Subbasin Flow Monitoring and I/I Assessment Plan and Report, Pump Station Prioritization and Renovation Plans, as well as annual progress reports. The programs and practices described in those plans and reports have been incorporated into the relevant sections of this SSMP.

The seven Satellites and EBMUD entered into a Consent Decree with EPA, the SWRCB, and the RWQCB (Case Nos. C09-00186-RS and C09-05684-RS) with the San Francisco Bay

Keeper and Our Children's Earth Foundation as Intervenor-Plaintiffs in September 2014. The Consent Decree establishes requirements for achieving the elimination of WWF discharges over 22 years.

1.3: Sewer System Management Plan Internal Audits and Update Schedule

The reissued WDR for sanitary sewers has been revised and defined new requirements for the auditing and updating of the Enrollee's SSMP including the preparation of internal audits of the SSMP. Audits must be completed, and an Internal Audit Report prepared covering a three-year period ending August 2, 2024. The Audit Report must then be completed, certified, and uploaded to the CIWQS system no later than February 2, 2025. Upon completion of the audit, the City must update the Plan along with readoption by the City Council no later than August 2, 2025.

The next three-year audit period covers the period from August 3, 2024, thru August 2, 2027. The Internal Audit Report must be completed, certified, and uploaded to CIWQS no later than February 2, 2028. Thereafter, the internal audits shall be competed every three years on the same schedule. The first SSMP revision under the reissued WDR shall be publicly considered and approved by the City Council and uploaded and LRO certified to CIWQS no later than August 2, 2025. Thereafter, the updates must be completed every six years from August 2, 2025. Failure by the City in complying with the new audit schedules requires the City to update the CIWQS system, notify the RWQCB with a justification for the failure to conduct the timely audit and a schedule for the completion of the audit. This does not change the required audit schedules for the future.

1.4: Sewer System Asset Overview

The City's collection system includes approximately 138 miles of City-owned sanitary sewers, 46 sewage pump stations, and 6 miles of force mains, approximately 3,129 manholes and other sewer structures.

The City has a service area of 22.7 square miles and a service population of 80,000. The percentage of service connection customer classes are stated in **Table 1 – 1** below. The information in Table 1 – 1 is from the City of Alameda Sewer Rate Study, Final Report February 2025.

Table 1 – 1: City Service Connections by Customer Class

Customer Class	Number of Accounts	Percentage
Single Family	14,166	63.3
Multi-Family	5,396	24.1
Commercials	2,808	12.6
Totals	**22,370**	**100.0**

The original sewers in Alameda were primarily terra cotta pipe and were installed between 1890 and 1920. The sewers constructed after 1920 can be divided into three major groups based on the date of construction: those built prior to 1950; between 1950 and 1970; and 1970 to the present.

In Alameda, the property owner owns the entire service lateral from the building to the connection to the City's sewer main; however, the City takes responsibility for maintenance and replacement of the lower portion of the lateral - owner operated laterals. Lower laterals are rehabilitated when the public sewer main to which it is connected to is rehabilitated, or if the lower lateral fails, whichever occurs first. The upper lateral remains the responsibility of the private property owner for operations, maintenance and repair, and replacement. The City participates with the other agencies tributary to EBMUD, in the lateral replacement program. This requires testing and possible repair or replacement of the upper lateral at the time of sale of the property.

This SSMP incorporates the sewer system programs and practices that are required as part of the Consent Decree and comply with the reissued WDR.

The following tables provide information on the sewer program assets under management by the City's Department of Public Works Staff.

Table 1 – 2: Gravity Pipeline Asset Information by Pipe Size

Diameter, inches	Number of Line Segments	Pipe Length, linear feet	Portion of Sewer System, %
4	48	4,978	0.7%
5	1	320	0%
6	750	146,482	20.2%
8	1,930	387,194	53.3%
10	384	75,265	10.4%
12	186	37,979	5.2%
14	34	6,147	0.8%
15	138	27,766	3.8%
16	9	2,494	0.3%
18	76	14,040	1.9%
20	3	952	0.1%
21	44	10,627	1.5%
24	22	4,836	0.7%
27	3	677	0.1%
30	14	2,455	0.3%

Diameter, inches	Number of Line Segments	Pipe Length, linear feet	Portion of Sewer System, %
Unknown	29	3,632	0.5%
Total	**3,671**	**725,844**	**100%**
Total Miles		**138 miles**	

Table 1 – 3: Gravity Pipeline Asset Information by Pipe Material

Material	Number of Line Segments	Pipe Length, LF	Percent of Sewer System
ABS	3	353	0.0%
ACP	11	2,067	0.3%
CIP	40	7,491	1.0%
CIPP	27	5,291	0.7%
CORR	1	79	0.0%
CP	3	631	0.1%
DIP	15	3,050	0.4%
HDPE	337	74,349	10.2%
PIC	8	1,641	0.2%
PSC	5	644	0.1%
PVC	1,641	335,930	46.3%
RCP	27	6,036	0.8%
RRP	1	344	0.0%
TRUS	91	17,328	2.4%
VCP	1,238	240,453	33.1%
Unknown	223	30,157	4.2%
Total	**3,671**	**725,844**	**100%**
Total. Miles		**138**	

Table 1 – 4: Gravity Pipeline Asset Information by Pipe Age

Age, Years	Construction Period	Percent of System*	Linear Feet of Main
1 – 5	2020 – 2024	7.6%	54,844
6 – 25	2000 – 2019	27.3%	198,320
26 – 45	1980 – 1999	27.2%	197,312

Age, Years	Construction Period	Percent of System*	Linear Feet of Main
46 – 65	1960 – 1979	9.8%	71,129
66 – 85	1940 – 1959	2.9%	21,333
95 – 105	1920 – 1939	2.3%	16,583
95 – 125	1900 – 1919	14.2%	103,271
> 125	Before 1900	0%	0
Unknown		8.7%	63,057
Total, linear feet		**725.844**	
Total, miles		**138**	

Table 1 – 5: Sewer Lift Station Asset Information

Pump Station Name	Location	Construction or Upgrade Date	No. Pumps	Pump Manufac-turer	Pump HP	Standby Generation KW
8th/Portola	1333 8th	FY12/13	2	Flygt	15	TRUE
8th/Taylor	777 Taylor	In design	2	Reliance	7.5	NA
Adelphian	282 Adelphian	FY16/17	2	Flygt	3	TRUE
Aughinbaugh	2695 Sea View Pkwy	FY13/14	2	Flygt	20	TRUE
Bay Fairway Hall	300 Island	FY16/17	2	Tsurumi	1	NA
Bayview	2811 Bayview	FY17/18	2	Flygt	3	NA
BFI	3 Clubhouse Memorial	FY11/12	3	Flygt	20	TRUE
Catalina	1851 Aughinbaugh Way	FY12/13	2	Flygt	15	TRUE
Channing	348 Channing Way	FY13/14	2	Flygt	3	TRUE
Clubhouse	1 Maitland	Inactive				NA
Cola Ballena	1237 Ballena	FY22/23	2	Reliance	10	NA
Dublin	609 Dublin	FY12/13	2	Flygt	5	TRUE
Eastshore/Myers	1328 Eastshore	FY17/18	2	Flygt	3	NA
Encinal Boat Ramp	Encinal Boat Launch	FY18/19	1	Flygt	3	NA
Grand Street	669 Grand	FY17/18	2	Flygt	10	NA
Grand/Otis	1700 Otis	FY22/23	2	Flygt	7.5	TRUE

Pump Station Name	Location	Construction or Upgrade Date	No. Pumps	Pump Manufac-turer	Pump HP	Standby Generation KW
Grand/Shoreline	301 Grand	FY13/14	2	Flygt	3	NA
Haile	245 Haile	FY16/17	1	Flygt	2.3	NA
Harbor Bay Parkway I	1 Penumbra Pl	FY22/23	2	Flygt	10	TRUE
Harbor Bay Parkway II	2350 Harbor Bay	FY16/17	2	Flygt	3	NA
LS 14	707 Hornet Av	UNK	2	Reliance	1	NA
LS 2	Stardust Place	UNK	2	Flygt	10	NA
LS 20	W Hornet at Skylark	UNK	2	Reliance	3	NA
LS 3	2840 Barbers Point	FY24/25	2	Flygt	20	NA
LS 4	1480 Viking	UNK	2	Flygt	5	NA
LS 5	1605 Ferry Point	UNK	2	Flygt	3	NA
LS 551	707 Hornet Av	UNK	2	Ebara	30	TRUE
LS 6	Stargell at Main St	FY17/18	2	Flygt	20	NA
LS 8	1450 Viking	UNK	2	Flygt	2.2	NA
Marina Village	1111 Marina Village	FY22/23	4	Reliance	10	NA
Mystery Pump Station	1951 Monarch	UNK	2	Ebara	5	TRUE
Park/Otis	2130 Shore Center Rd	FY12/13	2	Flygt	15	TRUE
Paru	700 Paru	FY22/23	2	Flygt	5	TRUE
Pond/Otis	1936 Otis	FY13/14	2	Flygt	3	NA
Sand Beach	1152 Sand Beach	FY17/18	2	Flygt	3	NA
Seaview I	2875 Seaview	FY17/18	2	Flygt	3	NA
Seaview II	41 Cork	FY17/18	2	Flygt	3	NA
Sheffield/Cumberland	166 Cumberland	FY17/18	2	Flygt	3	NA
Site A	214 W Trident Ave	FY19/20	2	Flygt	15	TRUE
Tideway	1359 Ballena	FY12/13	2	Flygt	3.7	NA
Triumph/Indep	3050 Triumph	FY17/18	2	Flygt	5	NA
Verdemar	3043 Flora Vista	FY16/17	2	Flygt	3	NA
Vets Building	1416 Walnut	FY19/20	2	Flygt	2.2	NA

Pump Station Name	Location	Construction or Upgrade Date	No. Pumps	Pump Manufac-turer	Pump HP	Standby Generation KW
Willow	333 Willow	In design	1	Reliance	10	NA
Willow/Whitehall	430 Willow	FY16/17	2	Flygt	3	NA
Yorkshire/Franciscan	2000 Franciscan	FY13/14	2	Flygt	3	NA

Table 1 – 6: Pressure Force Main Asset Information

Lift Station Name	Length, Linear Feet	Size, Inches
Adelphian	38	4
Aughinbaugh	1517	6
Bayview	38	4
BFI	2143	10
Catalina	1228	10
Channing	547	4
Clubhouse	346	4
Cola Ballena	501	6
Dublin	952	6
Eastshore/Myers	220	4
Eighth/Portola	28	8
Eighth/Taylor	70	4
Encinal Boat Ramp	644	4
Grand Street	852	6
Grand/Otis	512	8
Grand/Shoreline	306	4
Haile	223	4
Harbor Bay Parkway	120	8
Harbor Bay Parkway II	1574	6
LS 14	243	4
LS 2	369	8
LS 20	25	0
LS 4	142	6
LS 8	332	8
LS-5	307	6

Lift Station Name	Length, Linear Feet	Size, Inches
LS551	3253	10
LS6	2276	6
Marina Village	126	10
Mystery Pump Station	850	4
Park/Otis	649	8
Paru	677	4
Pond/Otis	40	4
PS 3	2892	12
Sand Beach	35	4
Seaview	245	4
Seaview II	69	4
Sheffield/Cumberland	28	4
Site A	1983	12
Tideway	797	8
Triumph/Indep	37	4
Verdemar	47	6
Vets-Building	51	4
Willow	236	4
Willow/Whitehall	94	4
Yorkshire/Franciscan	333	4
Total, linear feet	**27,986**	
Total, miles	**5.30**	

1.5: References

- Consent Decree: https://alamedaca.gov/publicworks public-works-key-documents
- City of Alameda Order Number No. R2-2025-0007, NPDES Permit No. CA0038474 - https://www.waterboards.ca.gov/rwqcb2/board_info/agendas/2020/February/6e_final_to.pdf
- City of Alameda Sewer Master Plan, November 2015: https://www.alamedaca.gov/files/assets/public/v/1/publicworks/sewer-master-plan-final-novemeber-2015.pdf

- City of Alameda Sewer Rate Study, Final Report February 2025: https://www.alamedaca.gov/files/assets/public/v/2/publicworks/alameda-sewer-rate-study-report_final_2025.pdf
- WDR Attachment D1: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo_2022-0103-dwq.pdf
- City of Alameda Asset Management Implementation Plan

2.0: Element 2 – Organization

The Sewer System Management Plan (SSMP) must identify:

a. The name of the Legally Responsible Official as in Specifications, Section 5.1 of the reissued WDR;

b. The position titles, telephone, and email addresses for management, administrative, and maintenance positions responsible for implementing specific SSMP Element;

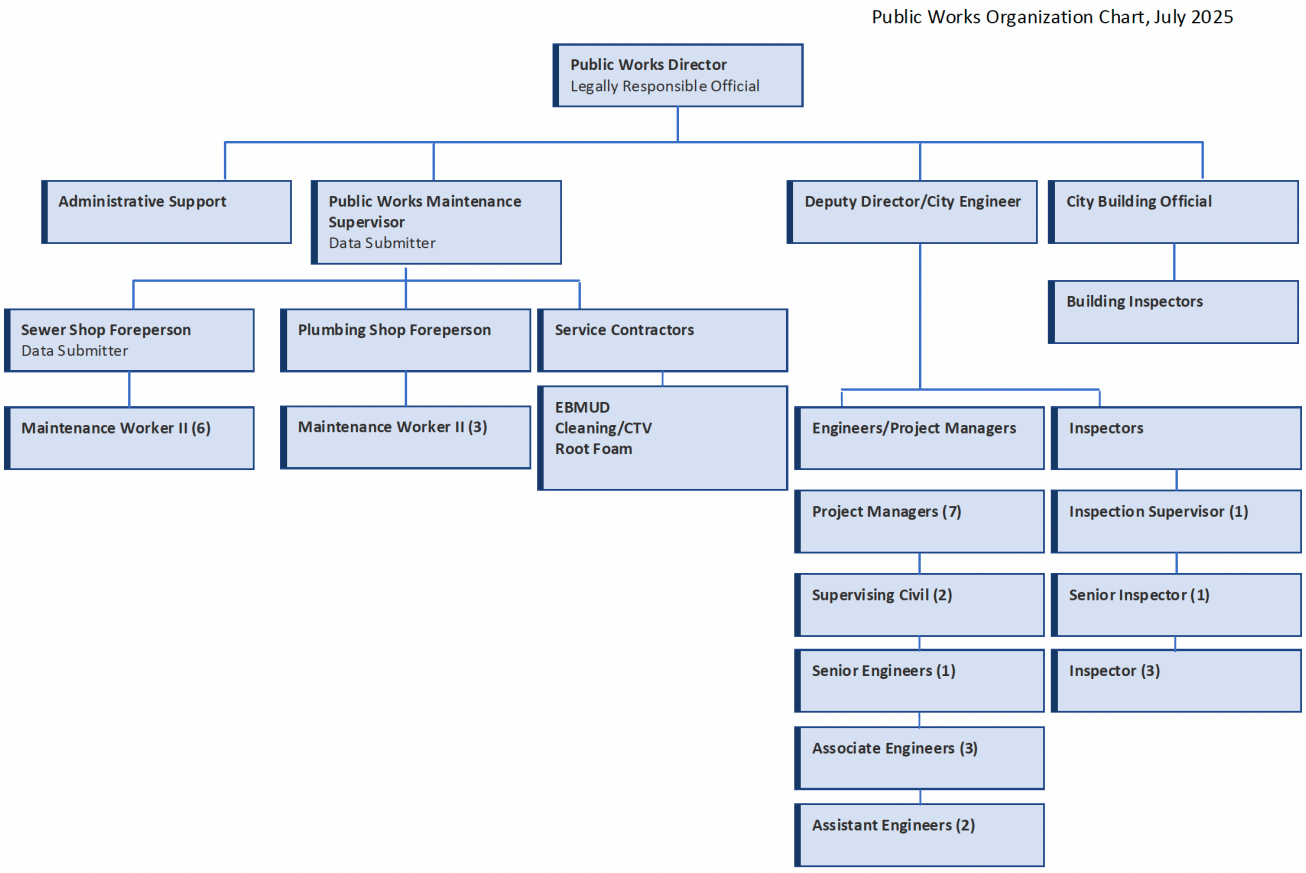
c. Organizational lines of authority; and

d. Chain of communication for reporting spills, from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Board and other agencies as applicable (For example, County Health Officer, County Health Agency, and State Office of Emergency Services).

2.1: Organization Chart and Contact Information

City staff responsible for implementing the Plan are included on the Public Works Department organization chart in **Figure 2 – 1**.

Figure 2 – 1: Alameda Public Works Department Organization Chart



2.2: Public Works Department

The Public Works Department is responsible for all of the City's water related functions. These functions include the City's wastewater collection system, storm drain system, lagoon management, streets and sidewalk systems, and related engineering services.

Positions responsible for management and implementation of the SSMP are discussed below:

- **Public Works Director (LRO) –** Under general direction, functions as the administrative head of the Public Works Department and is the final departmental authority in all matters of policy and operation; organizes, directs and controls all public works activities; plans and manages a comprehensive public works program; acts as the City's primary authority on public works issues; performs other related work as required. This position is Civil Service exempt.
- **Deputy Director/City Engineer (LRO) –** Under general direction, is responsible for supervision, coordination, administration and management of all City engineering and public works project management work, activities and functions; performs those duties specified by statute and ordinance as those of City Engineer; performs other related work as required.
- **Chief Building Official –** Under general direction is responsible for supervision, coordination, administration and management of all building services functions and activities, including building permits and inspection, plan review, and code enforcement; performs those duties specified by statute and ordinance as those of Building Official; performs other related work as required.
- **Public Works Maintenance Supervisor (DS) –** Under direction plans, schedules and directs the work of staff in the operation, administration, maintenance, repair, new construction, and performance of other activities involved in maintaining public infrastructure or capital assets; performs other related work as required.
- **Public Works Maintenance Foreperson (Sewer Shop and Plumbing) (DS) –** Under direction works with, coordinates and directs the work of a crew and contractors in connection with the construction, maintenance, installation, operation and repair of City property, facilities and equipment; performs other related work as required.
- **Maintenance Worker II –** Under general supervision, performs a variety of journey level skilled or semi-skilled trade work involved in the construction, installation, operations, maintenance and repair of public streets, buildings, structures, facilities, systems, equipment and grounds. Performs other related work as required.
- **Project Manager –** Under general direction, is responsible for overall management, coordination and administration of municipal public works projects and related services, activities and functions, including mid-scale public works and capital improvements projects; performs other related work as required.

- **Supervising Civil Engineer –** Under general direction supervises, manages and performs professional engineering work in connection with design and construction of public works projects, civil engineering, or designated specialized engineering functions/areas; performs other related work as required.
- **Senior Engineer –** Under general direction performs professional engineering work in the coordination and supervision of assigned engineering operations, programs, public works design and construction; may be assigned to function as a project manager or to serve as Public Works authority on specialized engineering issues and functions; performs other related work as required.
- **Associate Civil Engineer –** Under direction supervises and performs professional engineering work in connection with the design, construction, maintenance and plan review of street improvements, drainage structures, sewers, buildings and other public works and performs other related work as required.
- **Assistant Engineer –** Under direction supervises and performs professional engineering work in connection with the design, construction and maintenance of street improvements, drainage structures, sewers, buildings and other public works and performs other related work as required.
- **Inspection Supervisor –** Under general direction supervises and performs a variety of public works construction field work, maintaining accurate records of construction, time, cost and work performed for contractor payment preparation and ensuring compliance with plans and specifications; performs other related work as required.
- **Senior Construction Inspector –** Under general direction supervises and performs a variety of public works construction field work, maintaining accurate records of construction, time, cost and work performed for contractor payment preparation and ensuring compliance with plans and specifications; performs other related work as required.
- **Construction Inspector –** Under direction inspects a variety of public works construction projects, keeping accurate records of construction and time, cost and work performed for preparation of payments to contractors; assures compliance with plans and specifications and performs other related work as required.
- **Executive Assistant –** Under general supervision, provides responsible administrative and secretarial support to an executive manager or department head and principal staff; coordinates office activities and performs other related work as required.
- **Senior Clerk –** Under general supervision, performs a variety of difficult clerical and document production work and performs other related work as required.

- **Administrative Technician –** Under general direction performs journey level para-professional and technical work involved in the development, coordination and execution of administrative operational activities of assigned specialized areas; performs other related work as required.

2.3: Responsible and Authorized Representatives

The Public Works Director and the Deputy Public Works Director/City Engineer are the City's authorized representatives registered with the California Integrated Water Quality System (CIWQS) to certify spill reports, and any other submittals required to comply with the reissued WDR. The Director has authorized the Public Works Maintenance Supervisor, and the Sewer Shop Foreperson to prepare and submit electronic reports. The designated Data Submitters are authorized to enter spill data and other WDR required information into the CIWQS system prior to LRO approval and certification.

Table 2 – 1: Responsible Officials for Sewer System Management Plan

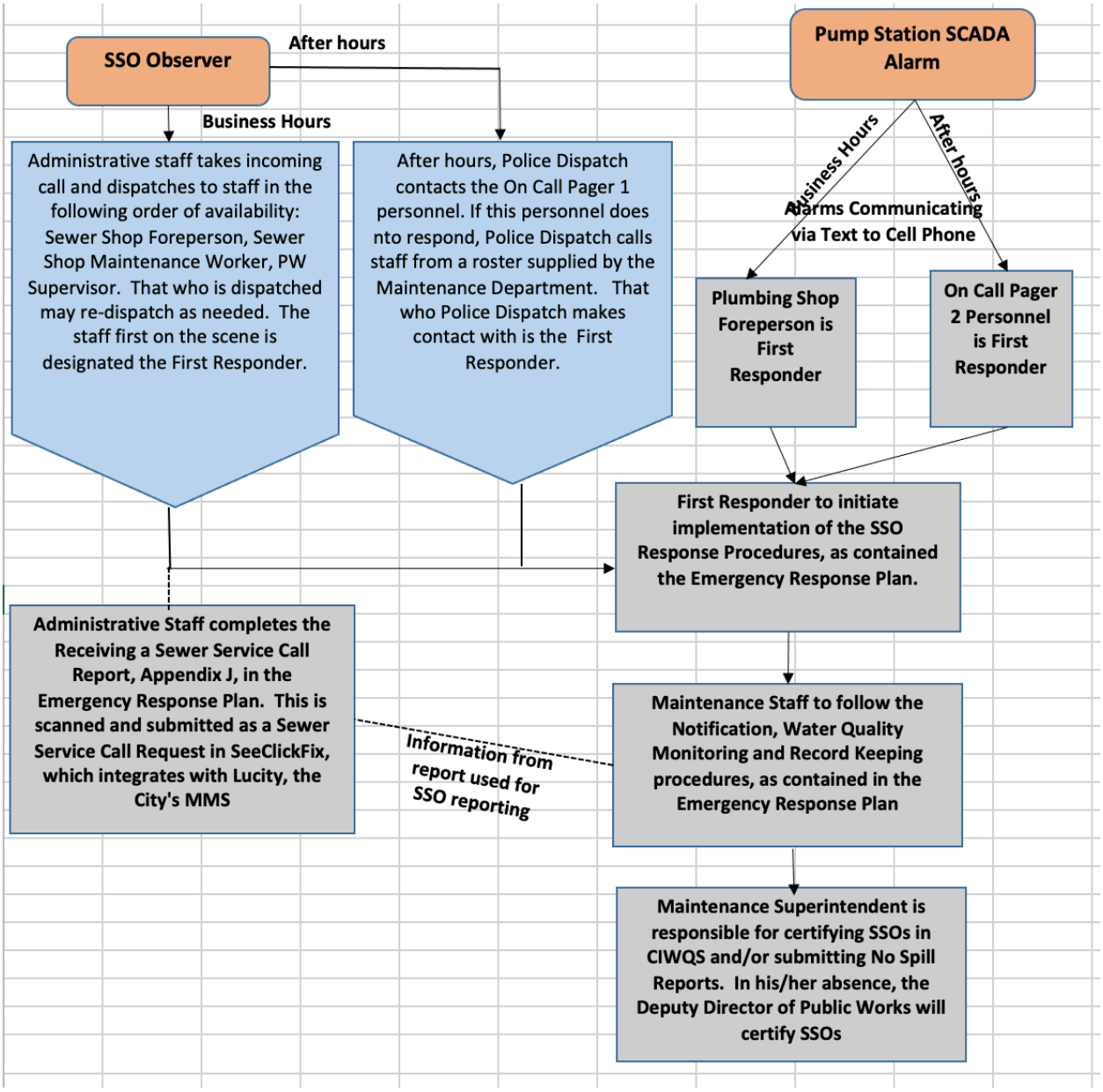
Element	Element Name	Responsible Official	Phone	Email
1	Introduction and Goals	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
2	Organization	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
3	Legal Authority	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
4	O&M Program	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
5	Design and Performance Provisions	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
6	Spill Emergency Response Plan	Manny Rios, Public Works Supervisor	510-747-7922	erios@alamedaca.gov
7	Sewer Pipe Blockage Control Program	Manny Rios, Public Works Supervisor	510-747-7922	erios@alamedaca.gov
8	System Evaluation, Capacity Assurance, CIP	Scott Wickstrom, Deputy Public Works Dir/City Engineer	510-747-7937	swikstrom@alamedaca.gov
9	Monitoring, Measurement and Program Modifications	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
10	Internal Audit	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov

Element	Element Name	Responsible Official	Phone	Email
11	Communications	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
Appendix A	Plan Adoption Documents	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
Appendix B	Plan Internal Audit Reports	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
Appendix C	Plan Change Log	Erin Smith, Public Works Director	510-747-7938	esmith@alamedaca.gov
Appendix D	Spill Emergency Response Plan	Manny Rios, Public Works Supervisor	510-747-7922	erios@alamedaca.gov
Appendix E	Spill & Operation Graphs	Manny Rios, Public Works Supervisor	510-747-7922	erios@alamedaca.gov

2.4: Chain-of-Communication for Reporting and Responding to Spills

In response to a spill event, the Public Works Department staff immediately implements the Spill Emergency Response Plan (SERP), discussed in more detail in Element 6. The SERP provides direction for the immediate verbal and written notification of City staff and agencies. The chain-of-communication for reporting and responding to spills, as described in the SERP, is summarized in **Figure 2 – 2**, below and SERP Appendix A: Alameda Spill Emergency Response Flow Chart.

Figure 2 – 2: Chain of Communication for Reporting and Responding to Spills



2.5: References

- WDR Attachment D2

3.0: Element 3 – Legal Authority

Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

a. Prevent illicit discharges into its sanitary sewer system (examples may include I/I; unauthorized stormwater, chemical dumping; unauthorized debris; roots, fats, oils, and grease; and trash, including rages and other debris that may cause blockages;

b. Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable;

c. Require that sewer system components and connections be properly designed and constructed;

d. Ensure access for maintenance, inspection, and/or repairs for portions of the service lateral owned or maintained by the Enrollee;

e. Enforce any violation of its sewer ordinances, services agreements, or other legally binding procedures; and

f. Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable.

3.1: Summary of Legal Authorities

The Alameda, California, Code of Ordinances (Alameda Municipal Code or AMC) and the California Plumbing Code, which was adopted by the City, provide the City with the required legal authorities. EBMUD Ordinances and Regulations are also applicable as they are owner of the regional interceptor and treatment facilities. The City's current legal authorities are summarized in **Table 3 – 1** and be accessed via the internet at the following websites:

- Alameda Municipal Code (AMC): https://library.municode.com/index.aspx?clientId=16753&stateId=5&stateName=California
- California Plumbing Code (CPC): http://www.iapmo.org/Pages/californiaplumbingcode.aspx
- EBMUD Consolidated Wastewater Control Ordinance effective September 13, 2024 - https://www.ebmud.com/wastewater/collection-treatment/wastewater-control-ordinance-discharge-limits

The specific sections applicable to the requirements of the Sewer System Management Plan (SSMP) are outlined below.

Table 3 – 1: Summary of Legal Authorities

Requirement	Legal Authority Reference
ILLICIT DISCHARGES	
Prevent illicit discharges into the wastewater collection system.	AMC 18-1.1; EBMUD Wastewater Ordinance
Limit the discharge of fats, oils, and grease and other debris that may cause blockages.	AMC 18-1.1
Control infiltration and inflow (I/I) from private service laterals.	AMC 18-5
PROPER DESIGN AND CONSTRUCTION	
Require that sewers and connections be properly designed and constructed.	AMC 18-2.1, 18-3.6
Require proper installation, testing, and inspection of new and rehabilitated sewers.	AMC 18-2.2. 18-2.4
ACCESS TO LATERALS	
Clearly define City responsibility and policies.	AMC 18-5
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the City.	City is Enforcing Agency, per California Plumbing Code.
FOG SOURCE CONTROL	
Requirements to install grease removal devices (such as traps or interceptors).	EBMUD Wastewater Control Ordinance and California Plumbing Code Chapter 10
Maintenance requirements, BMP requirements, record keeping, and reporting requirements for grease removal devices.	EBMUD Wastewater Control Ordinance
Authority to inspect grease producing facilities.	EBMUD Wastewater Control Ordinance and California Plumbing Code Chapter 10
ENFORCEMENT	
Enforce any violations of its sewer ordinances.	AMC 1.5. 18-5
*AMC refers to Alameda Municipal Code, Chapter XVII (Sewer and Water), Article I (Sewers)	

3.2: References

- Alameda Municipal Code: https://library.municode.com/ca/alameda/codes/code_of_ordinances
- EBMUD Wastewater Control Ordinance - https://www.ebmud.com/wastewater/collection-treatment/wastewater-control-ordinance-discharge-limits
- California Plumbing Code
- WDR Attachment D3: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo_2022-0103-dwq.pdf

4.0: Element 4 – Operations and Maintenance Program

The Sewer System Management Plan (SSMP) must include the items listed below that are appropriate and applicable to the Enrollee's system:

a. Updated map of the sanitary sewer system

b. Preventative Operations and Maintenance

c. Training

d. Equipment Inventory

4.1: Collection System Map

The City maintains a set of sanitary sewer collection maps that contain information about the sewer, manhole, and pump station locations, pipe sizes, rim and flow line elevations, and references to construction drawings. The sewer map books are periodically published from the data contained in the City's Geographical Information System (GIS). The GIS (spatial and attribute data) is updated, as field edits are identified and/or following capital improvement projects. The GIS mapping is used for hydraulic modeling and is integrated (ESRI SDE) with the City's maintenance management system, Lucity.

The City also maintains storm drain maps that contain GIS data and map books similar to the sanitary sewer asset information. The maps show the location of storm sewers and catch basins, pipe diameters and materials, manhole rim and flow line elevations, and flow directions. These systems can be overlaid in the GIS.

Field crews primarily use the GIS and Lucity available on their phones and/or Surface Tablets to locate assets.

4.2: Preventative Operations and Maintenance Program

The City implements a preventive maintenance program where all sewer mains are cleaned on a schedule ranging from a 90-day to 10-year return frequency. A line's cleaning interval is based on its maintenance history, results of TV inspection, proximity to environmentally sensitive areas as well as other factors. This approach is intended to minimize the occurrence of repeat blockages and/or spills from sewer line segments. Line segments that are on a 90-day return frequency are part of the "hot spot" cleaning program. All other sewer line segments are on a condition-based return frequency with no return frequency to exceed 5 years for non-grid sewers and 10 years for grid sewers.

4.2.1: "Hot Spot" Program

Sewer mains and lower laterals with previous repeat spills and/or that are identified by maintenance staff as having recurring maintenance issues (e.g., roots, grease, or debris accumulation) are defined as "hot spots." Sewer main hot spots are cleaned on a 90-day or 6-month schedule. Lower lateral hotspots are either cleaned on a 6 month schedule or have

chemical root control applied every 9 or 12 months. The majority of locations part of the hotspot program are areas of known grease and/or root intrusion. A pipe segment can be removed from the hot spot list if repair or replacement work resolved the maintenance issues or if the maintenance issue is not present for three consecutive cleanings.

Pipe segments on the hot spot list are managed in Lucity. An attribute of each pipe segment is the return frequency for cleaning or root control. Staff can add or remove lines from the hot spot list by adjusting the applicable attribute.

4.2.2: System-Wide Routine Cleaning

Sewer pipelines not assigned an aggressive preventive maintenance frequency are cleaned as part of a system-wide (routine) preventive maintenance program. The gravity sewer mains in the City's collection system are classified into two basic types: "grid" and "non-grid". The sewers in the grid system are characterized by having multiple pathways for flow should a temporary pipe blockage and flow backup occur. This allows the flow to be bypassed to another, non-obstructed sewer main and be conveyed downstream in another direction, thereby preventing a sanitary sewer overflow. Over 60 percent of the gravity sewers in the main Alameda collection system are part of the grid system. Each pipe is flagged as "grid" or "non-grid" in the City's GIS based on the configuration of the surrounding system.

The Consent Decree requires the City to complete cleaning of all pipes in the system (except for the Alameda Point system) by or before June 30, 2019. Thereafter, the City will clean all non-grid sewer mains at least once every five years and all grid sewer mains at least once every ten years. Mains that are greater than 15 inches in diameter may be cleaned based on condition assessment, which shall, at a minimum, take into consideration any information concerning the accumulation of fats, oil and grease, sediment, and debris derived from CCTV inspection or cleaning history.

In 2016, the City finished cleaning and filming all accessible pipes, to have the necessary condition data to develop the City's Sewer Master Plan, which contains a 20 Year Sewer Rehabilitation program. This cleaning and inspection work was performed by a contractor with QA/QC performed by City staff. The date of last cleaning and inspection is stored in Lucity for each pipe segment with an assigned return frequency, which will generate a work order when the next cleaning or inspection activity is due.

4.2.3: Pump Station Preventative Maintenance

All 46 pump stations in the City are monitored 24 hours/7 days per week using SCADA technology. Each of the City's pump stations is inspected and cleaned once per month. Lucity issues a monthly work order with the Monthly Pump Station Checklist. Any issue identified during the inspection requiring repair or other maintenance action is recorded in Lucity with applicable follow up work orders generated. Small issues are addressed immediately (the same day). Standby generators are also inspected monthly and run per manufacturer specifications.

4.2.4: Pump Station Force Mains

The City has about 5 miles of force mains ranging in size from 4 to 16 inches and in length from approximately 25 to over 3,300 feet, constructed of various types of pipe materials. The condition of the force mains is largely unknown; however, in 2015, the City started to replace force mains when pump stations are renovated. Since that time, 10 force mains (approximately 1,600 ft) were replaced with C900 restrained joints force mains. In addition, the Park/Otis force main was redesigned allowing for the abandonment of 3,248 feet of 8" asbestos concrete pipe. The new force main is 400 feet in length with C900 restrained joint. The City is currently working to develop and implement a force main condition assessment program for those force mains not scheduled for replacement in the near future. The force mains will be prioritized, and assessment methods tailored to each pipe based on age, material, size (or flow), location, and length, and whether or not the associated pump station has a high-level gravity pipeline bypass. Based on the results of the assessments, potential improvements to address identified force main condition deficiencies should be incorporated into the sewer system CIP.

4.2.5: Manhole Inspections

The City inspects manholes at the time of the cleaning of the pipe. These inspections identify any issues or problems found in the manhole. The inspections do not use any defined standards for the conditions or issues found in the manholes. The condition from the visual inspection is input to Lucity and/or work orders are prepared and issued to repair any issue identified from the inspection.

4.2.6: Root Control

The City uses chemical root control on pipes identified to have root intrusion via CCTV inspection. Pipes treated are kept on a two-year treatment schedule until the pipe is replaced or otherwise repaired in a manner that prevents future root intrusion. Pipe segments that are on the root foaming list are managed in Lucity. An attribute of pipe segments is Yes/No for the Root Control program. Those marked Yes have a Date Last Treated and Date Next Due for root foaming. Once a year, the PW Supervisor or Director will query those pipes due for root control and prepare a work request for the root foaming contractor.

4.2.7: Non-Routine Maintenance

Non-routine maintenance activities include investigation and response to any reports or complaints regarding a sewer overflow or backup; missing, shifted, or noisy manhole covers; pump station malfunction; unexpected sewer odor, etc. Sewer complaints received by the Public Works Department are entered into SeeClickFix, if the report is taken by administrative staff, or directly in Lucity if report is taken by sewer staff. SeeClickFix integrates with Lucity. The reports are investigated, and appropriate actions are taken to resolve the source of the problem.

4.3: Training

The City's training activities fall into two categories, safety and job skills. The two are closely related insofar as safety is of prime consideration in performance of any job activity. Safety training is conducted by City staff or outside consultants in the areas listed below. One or more topics are covered during monthly training sessions.

- Chemical Hygiene
- CPR / First Aid
- Driver Training
- Electrical lockout/tagout
- Emergency Response
- Fire Prevention/Fire Extinguishers
- Hearing Protection
- Forklift
- Hazard Communication
- Heat Stress
- Respiratory Protection
- Wastewater Pathogens
- Confined Space

Job skills training involves annual Spill Emergency Response Plan training, including methods to collect the information required for notification and reporting of spills under Order 2022-1030-DWQ, field exercises and volume estimation. All designated officials (LROs and DSs) receive regular training on the CIWQS system. Annual training also includes water quality monitoring. Specialized off-site training for specific job skills include National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) training and CWEA conferences and other events. Each employee has a file which documents training received.

The City designated LROs and DSs receive regular training on the State CIWQS system. All training is individually tracked by employee for all training provided from attendee sign-in sheets.

4.4: Contingency Equipment and Replacement Inventories

Equipment, tools, and material for the collection system are maintained at the Maintenance Service Center located at 1616 Fortmann Way and the Pump Storage House at 950 West Ranger Avenue, and are accessible to the crews. The City keeps two emergency bypass pumps

and a portable generator at the Pump Storage House. Spare parts are available for every pump station, and critical pump stations have spare pumps and motors on the shelf. Lists of the equipment, tools, materials, and spare parts that are kept at the Sewer Shop are included in Supplement 4A-1. The Public Works Supervisor is responsible for maintaining the equipment and parts inventory. The City is standardizing its equipment for sewer pump stations in order to achieve more efficient and reliable equipment operations, faster repair time on incidents that could result in spills through the use of common parts, and a reduction in on-going training costs. Standardization will also minimize spare and critical replacement parts inventory and costs. Supplement 4A – 2 includes a list of specified standardized equipment for sewer pump stations.

4.5: Supplement 4A – 1: Equipment Lists

Description	Use
Tractor / Backhoe	Sewer Repairs
Tractor / Backhoe (Standby)	Sewer Repairs
Vac-Con Jetter / Vacuum (2ea)	Sewer Cleaning / Repairs
PipeHunter Jetter / Vacuum	Sewer and Storm Drain Cleaning
Dump Truck	Sewer Cleaning / Repairs
Dump Truck (Standby)	Sewer Cleaning / Repairs
Flat-Bed Truck F-350	Sewer Cleaning / Repairs
Utility Truck F-450	Sewer Cleaning / Repairs
Utility Truck F-350 (3ea)	Sewer Cleaning / Repairs
Compressor / Jack Hammer	Sewer Repairs
Concrete Saw	Sewer Repairs
Walk Behind Concrete Saw	Sewer Repairs
Trench Shoring Jacks	Sewer Repair
Trench Shoring Jack Pump	Sewer Repair
Vibra Plate	Sewer Repairs (asphalt)
Wakers (2 ea.)	Sewer Repairs (compaction)
Emergency Bypass Pump (with level control unit)	Sewer Cleaning / Repairs
Emergency Bypass Pump (with level control unit and transducer)	Sewer Cleaning / Repairs
Emergency Bypass Pump	Sewer Cleaning / Repairs
Emergency Lighting	Sewer Cleaning / Repairs

Description	Use
Gas Generators (4 ea.)	Power for tools at Job Site
Sewer Snakes (3 ea.)	Sewer Cleaning
CCTV lateral cameras (2 ea.)	Sewer Cleaning / Repairs
Pipe Locater (2ea)	Sewer Cleaning / Repairs
Tripod and related equip	Confined Space Entry
Blowers (2 ea.)	Confined Space Entry
Gas Detector (4 ea., Certified Annually)	Confined Space Entry
CCTV Mainline Camera/Mobile Van	Sewer/Storm Inspections
Stationary Standby Generator (18ea)	
Portable Generator (1 ea.)	

4.6: Supplement 4A – 2: Collection System Materials Inventory

Item Description	Quantity
4" PVC Sewer Pipe and Coupling (Hard Coupling and Rubber Coupling)	400' Pipe, 10 hard & 10 rubber couplings
6" PVC sewer Pipe and Coupling (Hard Coupling and Rubber Coupling)	200' Pipe, 10 hard & 10 rubber couplings
8" PVC Sewer Pipe and Coupling (Hard Coupling and Rubber Coupling)	100' Pipe, 5 hard & 5 rubber couplings
4" PVC WYEs (4"X4), 22 degree ells, 45 degree ells	5 or each
6" PVC WYEs (4"X4), 22 degree ells, 45 degree ells	5 of each
8" PVC WYEs (4"X4), 22 degree ells, 45 degree ells	2 of each
Manhole Covers	2 ea.
Cleanout boxes and covers	5 ea.

4.7: References

- WDR Attachment 4D

5.0: Element 5 – Design and Construction Standards

The Plan must include the following items as appropriate and applicable to the Enrollee's system:

a. Updated design criteria, and construction standards and specifications, for the construction, installation, repair, and rehabilitation of existing and proposed system infrastructure components, including but not limited to pipelines, pump stations, and other system appurtenances.

b. Procedures, and standards for the inspection and testing of newly constructed, newly installed, repaired, and rehabilitated system pipelines, pumps, and other equipment and appurtenances.

5.1: Standard Specification for Sewer System Facilities

The City's standards pertaining to the design, construction, inspection, and testing of gravity sewer systems, sewer force mains, and other facilities to be operated and maintained by the City are contained in the Regional Standards for Sanitary Sewer System Installation, Rehabilitation and Repair, June 30, 2021 (revised), the *California Plumbing Code, the California Department of Transportation Standard Specifications*, and project-specific specifications for cyclic sewer replacement and pump station upgrade projects. The Regional Standards were developed per Consent Decree requirement and submitted to the Environmental Protection Agency. The City's sewer design standards are required for both new installation and replacement facilities.

The City participates in the Regional Private Sewer Lateral Program, implemented by EBMUD. The program requires that private laterals be repaired or replaced as necessary, and pass an air or water verification test per the testing standards contained here: http://www.eastbaypsl.com/eastbaypsl/doc/PSLContractorGuidelines.pdf

5.2: Standards for Inspection and Testing of New Facilities

Sanitary sewer force mains require pressure testing for tightness after the completion of backfilling but prior to the request for final inspection. Sewer gravity lines are tested for water tightness, obstructions, and vertical deflection. Hydrostatic or air pressure methods, depending on the specific project, can be used to ensure test requirements are satisfied. Cases with geotechnical considerations require an internal television inspection to detect defects.

5.3: References

- WDR Attachment D5
- Alameda City Standard Plans, Dec 2021 – https://www.alamedaca.gov/files/content/public/v/124/departments/public-works-department/coa_standardplans_dec2021.pdf

- Regional Standards for Sanitary Sewer Installation, Rehabilitation and Repair - https://www.alamedaca.gov/files/content/public/v/123/departments/public-works-department/rev_stds-report_061021.pdf
- https://www.alamedaca.gov/Departments/Public-Works-Department
- California Plumbing Code,
- California Department of Transportation Standard Specifications

6.0: Element 6 – Spill Emergency Response Plan

The SSMP must include an up-to-date Spill Emergency Response Plan (SERP) to ensure prompt detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The SERP must include procedures to:

a. Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;

b. Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;

c. Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;

d. Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;

e. Address emergency system operations, traffic control and other necessary response activities;

f. Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;

g. Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;

h. Remove sewage from the drainage conveyance system;

i. Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;

j. Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;

k. Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;

l. Conduct post-spill assessments of spill response activities;

m. Document and report spill events as required in this General Order; and

n. Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

6.1: Existing Documentation

The City, pursuant to the reissued WDR, completed and updated the original Overflow Emergency Response Plan to a Spill Emergency Response Plan (SERP). The SERP includes

all new requirements, and the revised sampling and testing requirements formally contained in the City Water Quality Monitoring Plan (WQMP).

The City's goals with respect to responding to sewer spills are:

- Respond quickly to minimize the volume of the spill;
- Contain the overflowed wastewater to the extent feasible;
- Eliminate the cause of the spill;
- Minimize public contact with the overflowed wastewater;
- Mitigate the impact of the spill; and
- Meet the regulatory reporting requirements.

6.2: Purpose

The purpose of the City of Alameda Spill Emergency Response Plan (SERP) is to support a prompt, orderly and effective response to spills (sanitary), reduce spill volumes, and collect information for prevention of future spills. A "spill" in this document is defined, by State Water Board Order No. WQ 2022-0103-DWQ as a discharge of sewage from any portion of a sanitary sewer system due to a sanitary sewer system overflow, operational failure, and/or infrastructure failure.

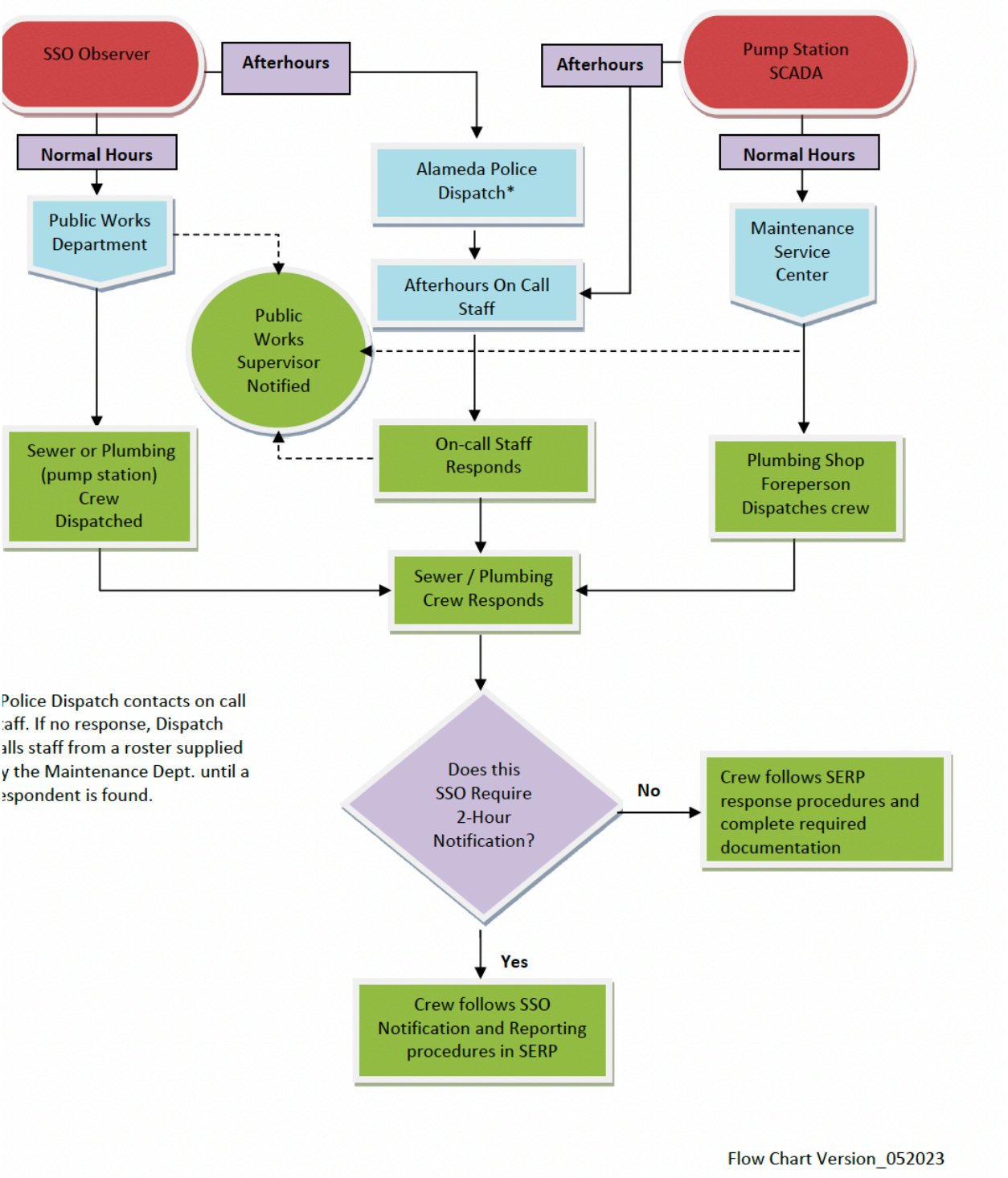
The SERP provides guidelines for City personnel to follow in responding to, cleaning up, reporting, and properly documenting spills that may occur within the City's service area. This SERP satisfies the State Water Board Order No. WQ 2022-0103-DWQ, which require wastewater collection agencies to have a Spill Emergency Response Plan.

Additionally, the SERP outlines procedures for responding to sanitary sewer spill backups into structures as required by the City's insurer. See definitions. "Backup" is a term typically used by insurers to describe property damage resulting from exposure and contact to untreated or partially treated sewage.

6.2.1: SSO Detection and Notification

The City can be notified of a sewer issue and/or spill in a variety of ways including a phone call from a member of the public, receipt of an alarm, and/or observation by City staff during the normal course of their work. The notification and response procedure flow chart is shown in **Figure 6 – 1**.

Figure 6 – 1: Notification and Response Procedure Flow Chart



6.2.2: Public Observation

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting spills and backups is on the City's website: www.alamedca.gov and messaged though Alameda SeeClickFix, a mobile service request

platform. The direct line to Public Works is (510) 747-7930. If the public contacts local police, fire, or other city department, calls are forwarded to the Public Works Department during business hours and to on call Public Works staff after hours. A summary of the notification and response process is shown in **Figure 6 – 1**.

6.2.3: Normal Work Hours

Public Works normal working hours are Monday through Friday, 8:00 a.m. to 6:00 p.m., except holidays. When a report of a spill or backup is made during normal work hours, Public Works administrative staff receive the call, take information from the caller, and dispatch the appropriate staff.

The information regarding the service call is documented on a "Receiving a Sewer Service Call Report", which is then scanned and uploaded to SeeClickFix, the City's customer relations manager. This information is then available to responding staff and ultimately is stored in Lucity as the spill documentation file.

6.2.4: After Work Hours

If a call comes into Public Works outside business hours, they are directed to press a number to connect to Police Dispatch in case of an emergency. The Public can also contact Police Dispatch directly at (510) 337-8340. Police Dispatch contacts the on-call staff Public Works staff member. The on-call staff member carries a cell phone and pager. The cell phone and pager also receives alarm signals from the pump station SCADA monitoring system.

If the on-call staff member does not respond, Police Dispatch has a backup list of phone numbers, including the Sewer Shop Foreperson and Public Works Supervisor. The Police Dispatcher continues to call Public Works staff until one can be reached to respond to the call. Police Dispatch communicates the information received to the respondent staff member.

After hours response information is entered directly into Lucity, the City's maintenance management system, by the on-call staff member.

6.2.5: City Staff Observation

Maintenance staff may observe sewer system emergencies while performing their routine activities. Maintenance Staff are instructed to report problems to the general Public Works Department number so administrative staff can receive the call and follow the procedures to document and dispatch staff for the incident. Any other City staff that observe a sewer issue are instructed to forward any reports of sewer problems to the Public Works Department.

6.2.6: Alarms

Pump station alarms are transmitted via SCADA to the Maintenance Service Center during working hours and the on-call staff member after hours.

6.3: Spill Notification, Reporting, Monitoring and Record Keeping

All spills caused in the public system should be thoroughly responded to with documentation maintained in a unique incident file. Each incident should have the Spill File Incident Checklist Form completed and associated materials stored in that file. Notification, reporting, monitoring and record keeping provisions follow in the below sections.

6.3.1: Spill Categories

The California State Water Resources Control Board (SWRCB) has established guidelines for classifying and reporting spills in the WDR. Notification, reporting and monitoring requirements may vary based on the category of spill. The spill categories defined in the WDR are included in **Table 6 – 1**.

Table 6 – 1: Spill Categories and Definitions

Categories	Category Definitions
Category 1	A Category 1 spill of any volume of sewage from or caused by a sanitary sewer system regulated under WDR that results in a discharge to: • A surface water, including a surface water body that contains no flow or volume of water; or • A drainage conveyance system that discharges to surface waters when the sewage is not fully captured and returned to the sanitary sewer system or disposed of properly. Any spill volume not recovered from a drainage conveyance system is considered a discharge to surface water, unless the drainage conveyance system discharges to a dedicated stormwater infiltration basin or facility. A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill.
Category 2	A Category 2 spill is a spill of 1,000 gallons or greater, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water. A spill of 1,000 gallons or greater that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system, is a Category 2 spill.
Category 3	A Category 3 spill is a spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water. A spill of equal to or greater than 50 gallons and less than 1,000 gallons, that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 3 spill.
Category 4	A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water. A spill of less than 50 gallons that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 4 spill.

Categories	Category Definitions
Private Lateral Sewage Discharge (PLSD)*	Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online spill Database.

* In the City of Alameda, the property owns the entire lateral (upper and lower); however, the City has maintenance responsibility for the lower lateral. Therefore, only discharges that are caused by a failure/blockage from the upper are considered Private Lateral Sewage Discharges.

6.3.2: Requirements by Category

Table 6 – 2 contains a summary of the regulatory notification, reporting, monitoring and record keeping requirements by category. California Integrated Water Quality Information System, http://ciwqs.waterboards.ca.gov, should be used for reporting spill information to the SWRCB.

If a spill reaches one of the lagoon systems in the City or the Robert Crown State Beach shoreline:

- **South Shore Lagoon System**: In the event any spill enters the South Shore Lagoon, the Public Works Supervisor will notify the Alameda West Homeowners Association (HOA) President and the East Bay Regional Park District. Contact information is included in Appendix B of this SERP.
- **Bay Farm Island Lagoon System**: In the event any spill enters one of the Bay Farm Island Lagoons, the Public Works Supervisor will notify Harbor Bay Security. The Harbor Bay Security number is (510) 865-0417.

In addition, internal notification procedures – The Maintenance Service Center (working hours) or on-call staff (after hours) will immediately notify the Sewer Shop Foreperson and Public Works Supervisor of any Category spill. The Public Works Supervisor will notify the Public Works Director.

Table 6 – 2: Spill Elements and Requirements

Element	Requirement	Method
Notification	As soon as possible, but no later than 2 hours of becoming aware of a spill 1,000 gallons or greater that discharges or has potential to discharge to waters of the State, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number. Provide updates to Cal OES until spill certified in CIWQS if changes to: • Estimated spill volume (increase or decrease in gallons initially estimated); • Estimated discharge volume discharged directly into waters of the State or indirectly into a drainage conveyance system (increase or decrease in gallons initially estimated); and • Additional impact(s) to the receiving water(s) and beneficial uses.	Call Cal OES at: (800) 852-7550 Obtain Control No.
Reporting*	• Category 1 and 2 Spills: Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • Amendment to Certified Spill Report within 90 calendar days of the spill end date can be made in CIWQS. • Monthly Reporting for Category 3 Spills: Submit Certified report within 30 calendar days after the end of the month in which the spills occurred. • Amendment to Certified Spill Report within 90 calendar days of the spill end date can be made in CIWQS. • Monthly Reporting for Category 4 Spills: Certify the estimated total spill volume and the total number of all Category 4 spills within 30 calendar days after the end of the month in which the spills occurred. • Annual Certified Spill Reporting of Category 4 and/or Lateral Spills. Annually upload and certify a report, in an appropriate digital format, of all recordkeeping of spills. • "No Spill" Monthly Certification: If either (1) no spills occur during a calendar month or (2) only Category 4, and/or Enrollee-owned	Enter data into the California Integrated Water Quality System (CIWQS) Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s). Any information that is protected by the Homeland Security Act, report by email to SanitarySewer@waterboards.ca.gov, with a brief explanation of the protection.

Element	Requirement	Method
	and/or operated lateral spills (that do not discharge to a surface water) occur during a calendar month, the Enrollee shall certify, within 30 calendar days after the end of each calendar month, either a "No-Spill" certification statement, or a "Category 4 Spills" and/or "Non-Category 1 Lateral Spills" certification statement. • SSO Technical Report: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters.	
Water Quality Monitoring	• Conduct water quality sampling within 18 hours after initial SSO notification for spills 50,000 gallons or greater that reach surface waters.	Water quality results are required to be uploaded into CIWQS for 50,000 gallons or greater spills that reach surface waters.
Record Keeping	• SSO event records. • Sanitary Sewer Management Plan (SSMP) implementation and changes / updates to SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Records are to be kept for 5 years.	Self-maintained records shall be available during inspections or upon request.
Water Quality Monitoring	• Conduct water quality sampling within 18 hours after initial SSO notification for spills 50,000 gallons or greater that reach surface waters.	Water quality results are required to be uploaded into CIWQS for 50,000 gallons or greater spills that reach surface waters.
Record Keeping	• SSO event records. • Sanitary Sewer Management Plan (SSMP) implementation and changes / updates to SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Records are to be kept for 5 years.	Self-maintained records shall be available during inspections or upon request.

Spill Record Keeping Requirements

The WDR and SERP require spill records be maintained by the City for a minimum of **five years** from the date of the spill. This period may be extended when requested by a Regional Water Quality Control Board Executive Officer.

All records shall be made available for review upon SWRCB or RWQCB staff's request during on-site inspection or through an information request. Records shall be retained for all spills, including but not limited to the following when applicable:

- Spill event complaint, including but not limited to records documenting how the Enrollee responded to notifications of spills. Each complaint record must, at a minimum, include the following information:
    - Date, time, and method of notification,
    - Date and time the complainant first noticed the spill, if available,
    - Narrative description of the complaint, including any information the caller provided regarding whether the spill has reached surface waters or a drainage conveyance system, if available,
    - Complainant's contact information, if available, and
    - Final resolution of the complaint.
- Records documenting the steps and/or remedial action(s) undertaken by the Enrollee, using all available information, to comply with the 2022 General Order, and previous General Order 2006-0003-DWQ as applicable;
- Records documenting how estimate(s) of volume(s) and, if applicable, volume(s) of spill recovered were calculated;
- All California Office of Emergency Services notification records, as applicable; and
- Records, in accordance with the Monitoring, Reporting and Record Keeping Requirements.

If water quality samples are required by an environmental or health regulatory agency or State law or if voluntary monitoring is conducted by the City or its agent(s) as a result of any spill, records of monitoring information shall include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical technique or method used; and

- The results of such analyses.

Sewer System Telemetry Records

Telemetry records, if used to document compliance with the WDR, as applicable, including spill volume estimates shall include:

- Supervisory control and data acquisition (SCADA) system(s);
- Alarm system(s);
- Flow monitoring device(s) or other instrument(s) used to estimate sewage flow rates, and/or volumes;
- Computerized maintenance management system records; and
- Asset management-related records.

6.4: Training

This section provides information on the training that is required to support this Spill Emergency Response Plan.

6.5: Initial and Annual Refresher Training

All City personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow should receive training on the contents of this SERP. All new employees should receive training before they are placed in a position where they may have to respond. Current employees should receive annual refresher training on this plan and the procedures to be followed.

6.6: Spill Response Drills

Periodic training drills should be held to ensure that employees are up-to-date on the procedures, the equipment is in working order, and the required materials are readily available. The training drills should cover scenarios typically observed during sewer-related emergencies (e.g., mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills should be recorded and action items should be tracked to ensure completion.

6.7: Tailgate Sessions

The Maintenance Service Center tailgate meetings that cover a variety of topics applicable to their responsibilities and safety requirements. Spill emergency response is a topic at these tailgate sessions on a routine basis.

6.8: Spill Training Record Keeping

Records should be kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event and should include date, time, place, content, name of trainer(s), and names of attendees.

6.9: Contractors Working on City Sewer Facilities

Any contractors that work or otherwise utilize the sewer system are required to comply with all legal requirements associated with SSO responses, be provided a copy of the City's SERP and have knowledge of the City's response procedures and requirements.

6.10: Policy

The City's employees are required to report all spills from agency owned sewer mains and publicly owned laterals found and to take the appropriate action to secure the spill area, properly report to the appropriate regulatory agencies, relieve the cause of the spill, and ensure that the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment. The City's goal is to respond to sewer system spills as soon as possible following notification. The City will follow reporting procedures regarding sewer spills as set forth by the San Francisco Regional Water Quality Control Board and the State Water Board Order No. WQ 2022-0103-DWQ (WDR).

The cover of the Spill Emergency Response Plan document is included in the SSMP Appendix D that contains all documents used to properly document the City response activities to all spill events.

6.11: References

- Spill Emergency Response Plan https://www.alamedaca.gov/files/assets/public/v/1/departments/alameda/public-works/alameda_oerp_final060523w-apendices.pdf
- WDR Attachment D6

7.0: Element 7 – Sewer Pipe Blockage Control Program

The Sewer System Management Plan must include procedures for the evaluation of the Enrollee's service area to determine whether a sewer pipe blockage control program is needed to control fats, oils, grease, rags, and debris. If the Enrollee determines that a program is not needed, the Enrollee shall provide justification in its Plan for why a program is not needed.

The procedures must include, at minimum:

a. An implementation plan and schedule for a public education and outreach program that promotes proper disposal of pipe-blocking substances;

b. A plan and schedule for the disposal of pipe-blocking substances generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of substances generated within a sanitary sewer system service area;

c. The legal authority to prohibit discharges to the system and identify measures to prevent spills and blockages;

d. Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices requirements, recordkeeping, and reporting requirements;

e. Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance;

f. An identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section; and

g. Implementation of source control measures for all sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.

7.1: Public Education and Outreach Program

Data on spills and causes were analyzed to define the nature and extent of FOG problems in the City's sewer system. The City has reported 36 spills during the past five years (as of July 2024), 20 of which were caused by FOG, or an average of about four FOG-related spill per year.

The City's preventive maintenance efforts combined with the EBMUD FOG Source Control Programs appear to be effective in minimizing the problems associated with commercial FOG sources; however, FOG discharges do cause increased maintenance in sewer mainlines, lower laterals and at City pump stations. City staff intends to pursue Council approval of a FOG ordinance, similar to other East Bay jurisdictions, with better definition around prohibited FOG discharges, Food Service Establishment requirements for the installation and

maintenance of grease control devices, and enforcement. The City will continue to contract with EBMUD for FOG Source Control Program services.

EBMUD's services include targeted FOG hot spot investigations (as reported by the City), food service establishment (FSE) and grease interceptor inspections, and public outreach and education. EBMUD also maintains a FOG control database to manage information about FSEs, inspections, FOG hotspots, and enforcement status. A quarterly report is prepared for each agency.

The City's building plan check records for FSEs are provided to EBMUD on a regular basis so that EBMUD has a record of all such establishments within the City. FSEs must have grease interceptors per the California Plumbing Code (CPC).

EBMUD prepares materials to be used as the basis for a focused public education/outreach program. EBMUD and the City provide public education/outreach materials at public events and to commercial and residential sources that are tributary to sewers that experience FOG-related stoppages and spills.

7.2: Plan and Schedule for Disposal of Pipe-Blocking Substances

A list of grease haulers approved by EBMUD is included as Supplement 7 – A. There is adequate disposal capacity for FOG from commercial sources within the City's service area.

7.3: Legal Authority

The City's legal authorities to control the discharge of FOG to its sanitary sewer system are described in Chapter 3, Legal Authority; however, staff intends to pursue Council approval of a FOG Ordinance, as described in Section 8.2. EBMUD currently issue two Notice of Violations, as applicable, for non-compliance identified during FSE inspections. Enforcement action beyond the two notices is the City's responsibility.

7.4: Identification and Sewer Cleaning

The City's preventive maintenance program is focused on the problematic sewer line segments. Historically, FOG hot spots were located in the business districts with restaurant establishments, namely Park Street, Webster Street, and the Town Centre Shopping Center. The City uses the results from sewer cleaning operations to revise sewer cleaning frequencies as required to address FOG issues. City staff provides the EBMUD FOG Source Control Program staff with timely notice when gravity sewers experience FOG-related blockages or spills.

7.5: Authority for Grease Control Devices, Inspections and Enforcement

The City Building Department is responsible for the determination of the need for grease control devices as part of the application of new or modified food service establishments. They also are responsible for the inspection and approval of the final construction at the site. Once installation is completed and approved by the City, EBMUD is then notified and

conducts all future inspections and preliminary enforcement activities. The City is ultimately responsible for any legal enforcement requirements with the assistance of EBMUD.

7.6: References

- WDR Attachment D7
- EBMUD Regional FOG Control Program. EBMUD FOG Webpage - https://www.ebmud.com/wastewater/bay-friendly-waste-disposal/fats-oils-and-grease
- California Plumbing Code

7.7: Supplement 7 List of Grease Haulers

Name	Phone Number
A-1 Septic Tank Service	510-697-8083
A-1 Septic Tank Service	800-730-4471
All Valley Environmental, Inc.	559-498-8378
Able Septic	408-377-9990
Ameriguard Maintenance Services	800-347-7876, ext. 14
Bay Pumping	831-320-5229
Burr Plumbing & Pumping	408-287-2877
Evergreen Recycling, Inc.	650-952-5000
Magnum Fire Protection	510-742-0775
Miller & Gibson (prev. Able Septic Tank Service)	408-377-9990
Miller & Gibson (prev. Able Septic Tank Service)	408-398-4990
ModestoTallow / Florin Tallow Co.	209-522-7224
ModestoTallow / Florin Tallow Co.	800-564-7204
One More Time	800-624-5504
Pioneer Liquid Transport	800-804-7327
Sacramento Rendering Co.	800-339-6493
Salina Tallow	800-621-9000
San Jose Tallow	408-452-8777

8.0: Element 8 – System Evaluation and Capacity Assurance Plan

The SSMP must include procedures and activities for:

a. Routine evaluation and assessment of system conditions;

b. Capacity assessment and design criteria;

c. Prioritization of corrective actions; and

d. A capital improvement plan.

8.1: Routine Evaluation and Assessment of System Conditions

8.1.1: Pipeline Condition Assessment

CCTV inspection is the basic method used by the City to gather the data required to assess sewer condition. The City's CCTV inspection program was initiated in 2009 and has been ongoing since. Both contract resources and in-house staff perform CCTV inspections of the system. The inspections (both by contractor and City) include digital capture of CCTV data, video, and still images using Granite.NET sewer inspection data management software.

The City uses the Pipeline Assessment and Certification Program (PACP) system developed by the National Association of Sewer Service Companies (NASSCO), which has become the standard of the industry for sewer condition assessment. PACP utilizes standard observation codes to describe different types of structural and maintenance-related defects and construction features, with defect grades assigned to each defect based on its type and severity.

Under the PACP standard, all structural defects are assigned a Structural Grade of 1 to 5, with Grade 5 representing severe defects and Grade 1 representing minor defects. (Maintenance defects are assigned similar O&M grades.) The grades for individual defects observed on a manhole-to-manhole pipe segment can be combined in various ways to determine an overall structural condition rating for the pipe. The PACP manual suggests several approaches for this purpose, including summing the grades of all defects or averaging the grades. While such approaches may be useful for screening pipes in terms of overall condition, they may not be particularly useful for prioritizing pipe replacement. What is most important in such decisions is the presence of major defects and the number of such defects. For example, a single Grade 5 defect in a pipe may require immediate action, while five Grade 1 defects would not, even though they both have a PACP overall segment grade score of 5.

8.1.2: Manhole Assessments

The City regularly assesses manholes along with the cleaning operation. Work orders are issued for staff to handle minor repairs or if the repairs is more complicated, private contractors would be hired to accomplish the repair.

8.1.3: Lift Station Assessment

The City has conducted extensive assessments of its sewer pump stations as part of separate studies. Information on estimated peak wet weather flows from hydraulic modeling have been considered in developing recommendations for pump station improvements, as well as other considerations including safety, reliability, structural condition, and ease of operation and maintenance. The City's 2012 Pump Station Renovation Plan developed a program for pump station improvements to be implemented. The pump station improvements varied by station but may include new pumps, conversion to submersible pumps, relocation, or re-building. Standardization of pumps and equipment was also a major objective of the pump station renovations.

8.1.4: Force Mains, and Pressure Pipes

It is recommended that the City develop and implement a force main condition assessment program to address the condition of its sewer force mains. The force mains should be prioritized for assessment based on age, material, size (or flow), location, and length, and whether or not the associated pump stations also have high level bypass gravity pipelines. Initially, the assessment could focus on the longest force mains (e.g., the seven that are over 1,000 feet in length) and the 15 force mains associated with pump stations that do not have gravity bypass lines.

Methods of inspection should be tailored to the pipe material, size and length, location and access, and other factors, but could include CCTV inspection (if possible), external corrosion investigations, or various pipe wall thickness and pipe leakage assessment methods. Based on the results of the assessments, potential improvements to address any identified force main condition deficiencies should be developed and incorporated into the sewer system CIP.

8.2: Capacity Assessment and Design Criteria

8.2.1: Hydraulic Analysis and Capacity Assurance

In May 2010, the City completed a Sanitary Sewer System Hydraulic Analysis study that included development of a dynamic hydraulic model of the collection system and use of the model to identify potential capacity deficiencies in the system. A model of the future Alameda Point sewer system was developed separately, as discussed later in this section. In 2015, the City updated the dynamic hydraulic model to incorporate new sewers and developments constructed since 2010 and additional flow data collected by EBMUD and the City since the original model was developed. Data from flow monitoring programs conducted by the City and by EBMUD during the 2009/10 and 2010/11 wet weather seasons were used to estimate the amount of I/I for various areas of the system and to confirm, through model calibration, that the hydraulic model reasonably simulates the actual performance of the system during both dry and wet weather conditions. The model was also expanded to include the proposed future sewer system in Alameda Point, as described below.

The capacity of the system was assessed with respect to a design storm condition, defined as a design rainfall event falling under saturated soil conditions with the timing of the storm such that the peak I/I flows occur at about the same time as the peak diurnal base wastewater flow in most areas. The design rainfall is a 7-hour historical storm (known as the "EBMUD design event"), which was defined for the 1980s I/I studies and has been used since that time by the Satellites and EBMUD for wet weather evaluations. The storm has an approximate rainfall return period of 5 years, but based on the assumed timing of the storm under design event conditions, it is generally thought to create a return period of peak wastewater flow that is greater (less frequent) than the return period of the rainfall event.

The hydraulic model was run with the design event to identify areas of the sewer system that would not have adequate capacity to convey the peak wet weather flows generated by that event. Capacity was considered inadequate whenever the model predicted that the peak flows would result in surcharge (flow above the crown of sewer pipes) to within five to six feet of manhole rims.

The modeling indicated that overall, the Alameda system has adequate capacity to convey peak wet weather flows. Only two potential capacity deficiencies were identified, both located within and/or downstream of the Harbor Bay Business Park area. Proposed sewer capacity improvements (pipe upsizing along Harbor Bay Parkway and Beach Road) were developed for these areas. The project along Harbor Bay Parkway is required to address a predicted existing capacity deficiency; the Beach Road project would only be required in the future when additional development in the Harbor Bay Business Park occurs. The City has experienced no capacity related overflows at either of these locations to date. The Hydraulic Analysis report recommends, and the City has, monitored these locations and will continue to do so before constructing improvements to confirm the capacity issues under peak wet weather flows.

The modeling also provided updated estimates of peak wet weather flows to the modeled system pump stations, which were compared to the existing and planned station firm capacities (firm capacity is the capacity of the pump station with the largest pump out of service). The City completed all pump station improvements identified in the Pump Station Renovation Program.

Note that climate change and predicted sea level rise may result in increased rainfall and higher groundwater levels in the system in the future. However, as the City continues to rehabilitate and replace sanitary sewers, and property owners replace their private service laterals, these changes are not expected to result in any further capacity issues in the Alameda sewer system.

Model results indicating peak I/I rates from different areas of the system were used as inputs to the pipe rating model, described previously in Section 4.4.

Note that overflow events (SSOs) in the City's sewer system have generally been associated with maintenance or construction related issues (e.g., blockages due to roots, debris, or

construction material or defects) rather than wet weather. As a result of the 1980s I/I and wet weather studies conducted by EBMUD and the Satellites, the City constructed a number of relief trunk sewers, completed sewer rehabilitation to reduce I/I the system, and removed any wet weather bypasses that existed at the time. These efforts over the past 45 years have eliminated capacity-related overflows in the system. As indicated by the Hydraulic Analysis results, virtually no existing pipe capacity restrictions remain in the system; and the City upgraded its pump stations where needed to provide adequate capacity for design peak wet weather flows.

A complete overview of the 2015 Hydraulic Analysis is contained in the City Sewer Master Plan, November 2015: https://www.alamedaca.gov/files/assets/public/v/1/publicworks/sewer-master-plan-final-novemeber-2015.pdf

8.2.2: Prioritization of Corrective Actions

The City's 2015 Sewer Master Plan developed a customized Pipe Rating Model which assigns a risk score to each pipe based on likelihood and consequence of failure factors and provides a means of prioritizing pipes for rehabilitation and replacement. The Pipe Rating Model, described below, was the key tool used for project prioritization for this Sewer Master Plan for sewer renewal and replacement and capital planning program. The methodology embodied in the Pipe Rating Model is based on guidelines recommended by the National Association of Clean Water Agencies (NACWA). The methodology involves quantifying and assessing the risks posed by the failure or inability of the sewer system to provide the level of service needed to meet the City's sewer system management goals. Using this approach, risk scores are calculated for each sewer pipe individually. Individual pipe scores can then be used to prioritize and group pipes into sewer rehabilitation and replacement projects.

The risk of asset failure is calculated by quantifying the likelihood of failure (LOF) and the consequence of failure (COF) of a sewer asset. The likelihood of failure is the possibility of asset failure and is synonymous with the "probability" of failure. The consequence of failure is defined as the impact on level of service resulting from asset failure. The risk equation is defined as follows:

$$\text{Risk} = [(\text{Likelihood}) \times (\text{Consequence})]$$

Likelihood of Failure

Four indicators of likelihood of failure were utilized in the Pipe Rating Model:

- **Structural Condition**: Structural condition was determined based CCTV inspection results, as stored in the Granite XP database. If CCTV inspection data did not exist for a pipe segment, then the likelihood of failure was estimated based on pipe segment age. Structural condition is a strong indicator of likelihood of failure and was heavily weighted.

- **Operations & Maintenance (O&M) Condition**: The required frequency of sewer cleaning is an indicator of the likelihood of asset failure due to a maintenance-related issue that could lead to an SSO. In addition, pipes that have roots and grease are also indicators of structural integrity which could lead to eventual failure. Data from the City's CCTV inspection program were used to quantify likelihood of failure due to maintenance condition. This likelihood of failure factor was given a lower weighting than other factors since, unlike structural, capacity and I/I issues, preventive maintenance cleaning can be performed to reduce the risk of SSOs due to recurring maintenance problems.
- **Capacity Deficiency**: This likelihood of failure factor is calculated from hydraulic modeling results. Sewers with insufficient capacity that are predicted to result in significant surcharge or potential overflows under a design event peak wet weather flow condition were considered to have a high likelihood of failure due to capacity deficiency.
- **I/I Contribution**: This factor is based on the relative impact of I/I in the City's system on flows in the EBMUD interceptor system that contribute to discharges from EBMUD's Wet Weather Facilities (WWFs). Basins contributing higher amounts of I/I (based on peak I/I flow per foot of pipe) are assigned a higher I/I score and may be targeted for improvements to reduce flows to the EBMUD system.

Consequence of Failure

Consequence of failure is assessed by examining the impact on economic, social and environmental factors. This approach, often referred to as the Triple-Bottom-Line approach, involves identifying and quantifying suitable indicators that represent these core categories. For this study, the following indicators were used to assess the Consequence of Failure:

- **Flow Volume (Economic)**: Larger sewer spills or failure of a sewer asset serving a large tributary area can have a significant impact on the cost of fixing the pipe and restoring damaged property and the surrounding area. The size of the sewer was chosen as an indicator of the potential impact of large spills or failure of a major sewer asset.
- **Community (Social)**: Sewer failures can significantly impact commuters, commercial areas, public facilities, and the community in general. Location in major roads or commercial areas, or proximity to critical facilities such as emergency services, hospitals and schools were used as indicators of potential community impact. In addition, sewers located in easements (i.e., not in a public right-of-way) are considered to have a greater social impact, hence, were included as a community impact factor.

- **Environmental**: Sewer overflows that reach surface waters can adversely impact water quality and the environment. Distance to surface water and storm drain inlets was used as an indicator of the potential environmental impact of a sewer spill.

Risk Score Calculations

The Pipe Rating Model utilizes data directly from GIS and Granite XP, and indirectly from the hydraulic model developed and used for the Master Plan, to compute LOF scores. Structural and O&M conditions were derived from data from previous and recent CCTV inspection programs collated and managed through Granite XP. Community and environmental COF scores were derived from GIS mapping. The risk score calculations were processed using ArcGIS ModelBuilder tools, which combine a series of GIS processes to automate the risk analysis calculations.

The resulting ranking was then used to develop the capital improvement program schedule and availability of funding for the priority projects and to meet the required schedules for replacement in the City Consent decree. Based on the above program, by the end of 20 years the City will have rehabilitated or replaced over 75 percent of its gravity sewer system. The City may elect to modify the CIP schedule as needed to accommodate budget constraints and changes in project priorities as additional inspection data and other information are collected over time. Such information may include coordination with street paving or other infrastructure or utility projects; new or recurring maintenance problems in the system; or incorporate specific information provided by EBMUD as to priority areas for focusing I/I reduction efforts.

8.2.3: Capital Improvement Program (CIP)

The City Engineering Division is responsible for the preparation, management, administration and construction of the long-term capital improvement program. The 2015 Sewer Master Plan developed a 20 year gravity pipeline replacement program based on the pipe rating model described above.

The sewer rehabilitation CIP was developed from the Sewer Master Plan based on the following three primary criteria:

- Meet the minimum annual sewer rehabilitation footage requirements of the Consent Decree.
- Maintain consistency with the City's annual capital improvement budget based on the financial plan and sewer service charge schedule that has been adopted by the City Council.
- Prioritize sewers for rehabilitation based on risk scores as calculated by the Pipe Rating Model and other factors such as pipe material, pavement condition, and proximity.

8.2.4: Biennial CIP Budget

The City Public Works Department is responsible for the preparation and approval of a biennial capital improvement program (CIP) for all city operations including the sanitary sewer program. The CIP is prepared using the Sewer Master Plan prioritization process and schedules developed therein. The adopted CIP was last approved in June 2023 for the period 2023-24 thru 2024-25. The next CIP is estimated to be considered by the City Council in June 2025.

8.2.5: Project Funding

The City generally relies on sewer service charges and sewer fund reserves to fund the biennial capital program work. The City last conducted a sewer rate study in 2025 to set rates for Fiscal Years 2025/26 through 2029/30. A 3% annual increase over the 5 year rate period was determined optimal to:

- Fund sewer pipeline replacements and other capital improvements.
- Maintain adequate operating and capital reserves.
- Meet or exceed debt coverage requirements.
- Mitigate impacts on the ratepayers.

8.2.6: Joint Coordination

The City staff from both Engineering and Operations Divisions regularly meet to discuss and develop the capital program and to review changes and funding required for any changes proposed in the Capital Budget.

8.3: References

- City of Alameda Sewer Master Plan, November 2015 - https://www.alamedaca.gov/files/assets/public/v/1/publicworks/sewer-master-plan-final-novemeber-2015.pdf
- City of Alameda Sewer Rate Study, February 2025

  https://www.alamedaca.gov/files/assets/public/v/2/publicworks/alameda-sewer-rate-study-report_final_2025.pdf
- 2012 Pump Station Renovation Plan
- City of Alameda Capital Improvement Program, 2023/24 to 2024/25

9.0: Element 9 – Monitoring, Tracking and Reporting System

The Enrollee shall:

a. Maintain relevant information, including audit findings, to establish and prioritize appropriate Plan activities;

b. Monitor the implementation and, measuring the effectiveness of each element of the Plan;

c. Assess the success of the preventative maintenance activities;

d. Updating Plan procedures and activities, as appropriate, based on monitoring and performance evaluations; and

e. Identifying and illustrating spill trends, including spill frequency, locations, and estimated volumes.

9.1: Adaptive Management

The City regularly tracks and updates the performance results of the sanitary sewer program. In addition, the SERP is also reviewed for effectiveness and any changes are made to assure proper and timely responses prior to the annual report certification requirement. The City also pursues and evaluates the SSMP Audit Report corrective actions to determine when and how the program should be modified and changed. Finally, the sewer program uses the historical performance results, post spill assessments and operation and maintenance results during the development of the Annual Sewer Report to assess the need for further adaption of the program to reduce spills to Waters of the State and to review and consider implementing technology changes to further improve operations of the program. All modification and changes to the SSMP are then included in the SSMP Change Log.

9.2: Effectiveness

The effectiveness of each SSMP element is measured through the use of selected performance indicators. These indicators are tracked and reported regularly and include the annual performance requirements in the SSMP for the Annual Report submitted to the CIWQS system. The results are used to evaluate the effectiveness of the overall sewer program comparing regular operations and maintenance results against the effectiveness of the spill response program protecting Waters of the State. Performance indicator results are incorporated into historical graphs displayed in Appendix E. Below are some of the indicators that the City will use as they evaluate the success of the maintenance program and adapt the sewer program in the future:

- Annual total number of spills
- Annual spills by spill category

- Annual number of spills by cause
- Comparison of spill rate/100 miles to RWQCB and state enrolled agencies
- Annual volume of spills
- Annual volume to Waters of the State
- Net volume spill indices, gallons/1000 capita/year
- Annual linear feet of routine cleaning
- Annual linear feet of CCTV inspection performed
- Annual linear feet of chemical root control performed
- Annual linear feet of gravity sewer rehabilitated or replaced

9.3: Updating Plan Procedures and Activities

Based on the above monitoring, performance criteria and historical graphs, the audit reports and any changes identified in the SSMP Change Log, the elements of the SSMP will be updated or modified, as appropriate during the six-year period. At a maximum, the SSMP will be updated every six (6) years and include any significant program changes. In accordance with Subsection D.14 of the Order, the updated SSMP will be re-certified by the City Council and uploaded and certified by the City LRO into the CIWQS database. All SSMP changes resulting from the adaptive management process and audits will be identified in detail in the SSMP Change Log between Council adoptions.

9.4: Identifying and Illustrating Trends

Performance indicator data are compiled from information regularly collected and maintained by the Public Works Supervisor. Current and readily available sources, which are described throughout this SSMP, include spill field report forms, CIWQS database reports, sewer system cleaning schedules, and FOG inspection reports. Historical graphs of spill and operational performance results are displayed in Appendix E.

9.5: References

- WDR Attachment D9
- Appendix E Spill and Operational Performance Results

10.0: Element 10 – SSMP AUDITS

The SSMP shall include internal audit procedures, appropriate to the size and performance of the system, for the Enrollee to comply with section 5.4 (Sewer System Management Plan Audits) of the 2022 General Order.

10.1: SSMP Audits

As previously described in Element 9, the City audits and updates the SSMP on a triennial (every 3 years) basis. The Internal Audit Report covers the three-year period, and the certified Internal Audit Report must be completed within six (6) months following the end of the three-year audit period. If updates or changes are required to the SSMP or the SERP, the content and timeline to complete those changes are described in the audit and as the changes are made, they are tracked in the SSMP Change Log in Appendix C. The Internal Audits, upon completion and certification, are required to be certified and uploaded to the CIWQS system for State staff review and evaluation.

Failure to complete, certify and upload the SSMP Audit Report on the required timeline, the agency must report this failure to the RWQCB and the SWRCB along with a schedule for the completion as previously required. The timing of the late report does not alter the required schedule the next Audit Report completion.

10.2: References

- WDR Attachment D10

11.0: Element 11 – Communication Program

The SSMP must include procedures for the Enrollee to communicate with:

- The public for:
    - Spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and
    - The development, implementation, and update of its Plan, including opportunities for public input to Plan implementation and updates.
- Owners/operators of systems that connect into the Enrollee's system, including satellite systems, for:
    - System operation, maintenance, and capital improvement-related activities.

11.1: Communication with Public

The SSMP is available for public review, if requested, at the Maintenance Service Center and Public Works Department office. The SSMP is also posted on the Public Works Key Documents at http://webpage: https://www.alamedaca.gov/Departments/Public-Works-Department.

Performance of the SSMP is communicated in Element 9 and the SSMP Internal Audit available from the City Public Works Department. The City (WDID 2SSO10087) reports spills electronically to CIWQS. The electronic spill data, as well as information regarding regulatory actions, is available at: http://www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml.

The City's Public Works Department Key Documents section also contains a copy of the following:

- Sewer Collection System NPDES Permit
- Sewer Consent Decree
- Sewer Rate Study – February 2025
- Sewer System Management Plan
- Sanitary Sewer Overflow Emergency Response Plan
- Sewer Master Plan Final – November 2015

In addition, there is a dedicated webpage for the Regional Private Sewer Lateral Program: https://alamedaca.gov/community-development/building/private-sewer-lateral. And a webpage for sewer and stormwater fees: https://www.alamedaca.gov/Departments/Public-Works-Department

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11.2: Communication with Tributary Systems

The City has several opportunities to regularly communicate with the other EBMUD satellite agencies at the Collection System Technical Advisory Committee (CSTAC). CSTAC members include EBMUD, the Cities of Albany, Berkeley, Piedmont and Emeryville and Stege Sanitary District. CSTAC is primarily focused specifically on Consent Decree implementation and other regulatory issues currently facing the Satellites. In addition, the City has the opportunity to communicate with other neighboring agencies in the Bay Area at monthly BACWA Collection System Committee meetings.

The City conducts monthly meetings with the Alameda West Lagoon (Southshore) Homeowners Association (HOA) regarding lagoon issues, and communicates with other HOAs as needed. The City maintains a contact list of all HOAs in the City, which includes those with lagoons that could potentially be impacted by spills, and those that own and operate private sewer systems.

11.3: References

- WDR Attachment D11
- Private Sewer Lateral Program - https://www.ebmud.com/wastewater/private-sewer-laterals
- California State Water Resources Control Board SSO Office - https://www.waterboards.ca.gov/water_issues/programs/sso/

Appendix A: Plan City Council Adoption Documents

Approved as to Form
City Attorney

CITY OF ALAMEDA RESOLUTION NO. 14364

APPROVING THE DEVELOPMENT PLAN AND THE TIME SCHEDULE FOR THE SEWER SYSTEM MANAGEMENT PLAN AS ADOPTED BY THE STATE WATER RESOURCES CONTROL BOARD

WHEREAS, pursuant to Section 13267 of the California Water Code, municipalities that own and operate sanitary sewer collection system are required to prepare a Sewer System Management Plan (SSMP); and

WHEREAS, on May 2, 2006, the State Water Resources Control Board (SWRCB), adopted new statewide Sanitary Sewer Overflow Waste Discharge Requirements (SSO WDR); and

WHEREAS, pursuant to the statewide SSO WDR, agencies that own and operate sanitary sewer system must develop a SSMP and complete the SSMP elements in accordance with the SWRCB milestone schedule; and

WHEREAS, the City of Alameda has developed and completed an SSMP, based on the Regional Water Quality Control Board (RWQCB) guidelines; and

WHEREAS, the City of Alameda Public Works Department's staff is responsible for maintaining and reporting of the SSMP elements to the SWRCB and RWQCB; and

WHEREAS, the SSMP is also a part of the City of Alameda Sewer Master Plan, funded by the City Sewer Funds.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Alameda hereby accepts the completed SSMP as adopted by the SWRCB.

* * * * * * *

I, the undersigned, hereby certify that the foregoing Resolution was duly and regularly adopted and passed by the Council of the City of Alameda during the Regular Meeting of the City Council on the 21st day of July, 2009, by the following vote to wit:

AYES:	Councilmembers deHaan, Gilmore, Matarrese, and Mayor Johnson - 4.
NOES:	None.
ABSENT:	Councilmember Tam - 1.
ABSTENTIONS:	None.

IN WITNESS, WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 22nd day of July, 2009.

Lara Weisiger, City Clerk
City of Alameda

CITY OF ALAMEDA RESOLUTION NO.14976

RESOLUTION APPROVING THE CITY OF ALAMEDA SEWER SYSTEM MANAGEMENT PLAN, AUGUST 2014

WHEREAS, on May 2, 2006 the State Water Resources Control Board (State Water Board) adopted Statewide General Waste Discharge Requirements (WDR) for all public agencies that own or operate a sanitary sewer system within the State of California; and

WHEREAS, the WDR requires agencies to develop and implement a Sewer System Management Plan (SSMP); and

WHEREAS, the State Water Board's Executive Director issued a revised Monitoring and Reporting Program that became effective on September 9, 2013; and

WHEREAS, the SSMP must be certified by City Council at least once every five years and must include program updates; and

WHEREAS, this City Council adopted Resolution No. 14364 on July 21, 2009 approving the City's SSMP; and

WHEREAS, the SSMP was updated in accordance with the WDR and a revised Monitoring and Reporting Program; and

WHEREAS, the updated SSMP is consistent with the City's work requirements in the Final Consent Decree for Consolidated Case Nos. C 09-00186-RS and C 09-05684-RS; and

WHEREAS, the updated SSMP must be presented to the City Council at a public meeting and formally adopted to assure that the public has the opportunity to comment on the collection systems policies and procedures.

NOW, THEREFORE, the City Council of the City of Alameda, DOES HEREBY RESOLVE that the Sewer System Management Plan, August 2014 is approved.

* * * * * *

I, the undersigned, hereby certify that the foregoing Resolution was duly and regularly adopted and passed by the Council of the City of Alameda in a regular meeting assembled on the 21st day of October, 2014, by the following vote to wit:

AYES:	Councilmembers Chen, Daysog, Ezzy Ashcraft, Tam and Mayor Gilmore – 5.
NOES:	None.
ABSENT:	None.
ABSTENTIONS:	None.

IN WITNESS, WHEREOF, I have hereunto set my hand and affixed the seal of said City this 22nd day of October, 2014.

Lara Weisiger, City Clerk
City of Alameda

APPROVED AS TO FORM:

Janet C. Kern
City Attorney

CITY OF ALAMEDA RESOLUTION NO. 16290

APPROVING THE CITY OF ALAMEDA SEWER SYSTEM MANAGEMENT PLAN, JULY 1, 2025

WHEREAS, the State Water Resources Control Board (SWRCB) previously issued Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, which included, among other requirements, the development of a Sewer System Management Plan (SSMP); and

WHEREAS, on July 21, 2009, City Council adopted Resolution No. 14634 approving the City's first SSMP and subsequently on October 21, 2014, adopted Resolution No. 14976 approving an updated SSMP; and

WHEREAS, SWRCB Order No. 2006-0003-DWQ was replaced on December 6, 2022, by SWRCB Order WQ 2022-0103-DWQ Statewide Waste Discharge Requirements, General Order for Sanitary Sewer Systems, which became effective on June 5, 2023; and

WHEREAS, SWRCB Order WQ 2022-0103-DWQ requires updates and additions to the previously required SSMP; and

WHEREAS, SWRCB Order WQ 2022-0103-DWQ requires the updated SSMP to be presented to the City Council at a public meeting and formally adopted to assure that the public can comment on the sewer system policies and procedures; and

WHEREAS, SWRCB Order WQ 2022-0103-DWQ requires a sewer system serving a population the size of Alameda's to have a City Council approved updated SSMP submitted to the SWRCB by August 2, 2025; and

WHEREAS, the updated SSMP is consistent with the City's work requirements in the Final Consent Decree for Consolidated Case Nos. C 09-00186-RS and C 09-05684-RS.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Alameda that the Sewer System Management Plan, July 1, 2025, is approved.

* * * * *

I, the undersigned, hereby certify that the foregoing Resolution was duly and regularly adopted and passed by the Council of the City of Alameda in a regular meeting assembled on the 1st day of July 2025, by the following vote to wit:

AYES:	Councilmembers Boller, Daysog, Jensen, Pryor and Mayor Ezzy Ashcraft – 5.
NOES:	None.
ABSENT:	None.
ABSTENTIONS:	None.

IN WITNESS, WHEREOF, I have hereunto set my hand and affixed the seal of said City this 2nd day of July 2025.

Lara Weisiger, City Clerk
City of Alameda

APPROVED AS TO FORM:

Yibin Shen, City Attorney
City of Alameda

Appendix B: Plan Internal Audit Reports

2017 SEWER SYSTEM MANAGEMENT PLAN

INTERNAL AUDIT

AUDIT PERIOD: August 2, 2021 THROUGH August 1, 2024

CITY WDID#: 2SSO10135

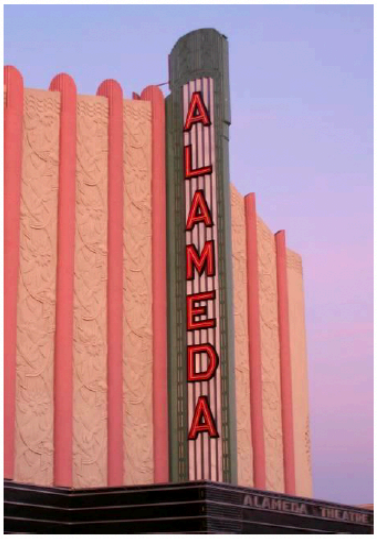
January 15, 2025

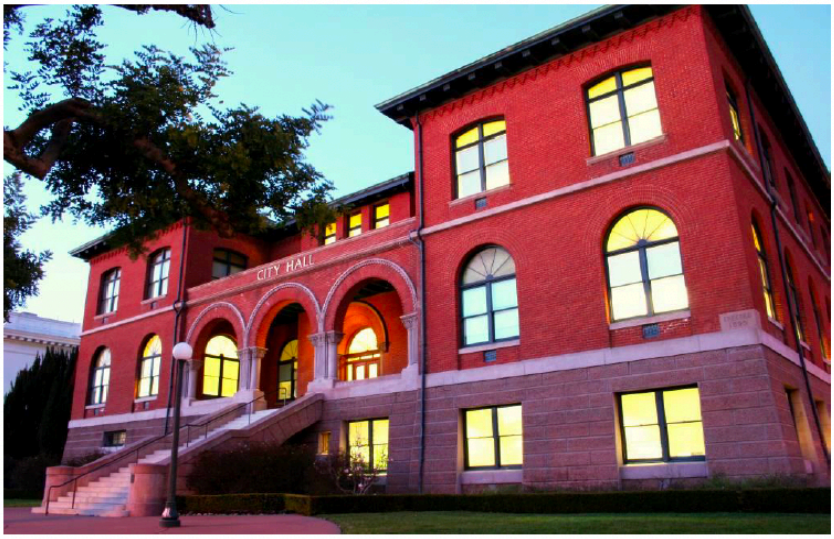
Prepared in Consultation with:
Causey Consulting
Walnut Creek, CA 94598

Appendix C: Plan Change Log

PLAN CHANGE LOG			
Date	***SSMP Element #***	***Description of Change / Revision Made***	***Person Authorizing Change***

Appendix D: Spill Emergency Response Plan



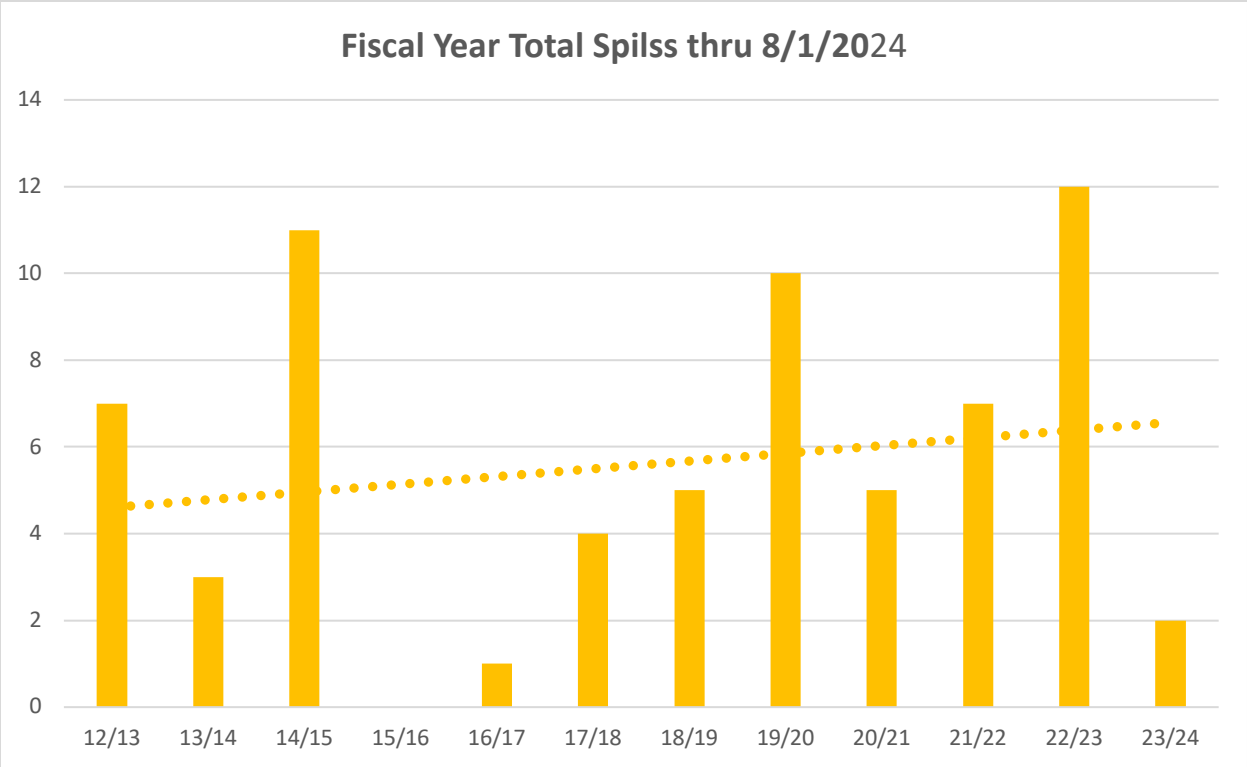


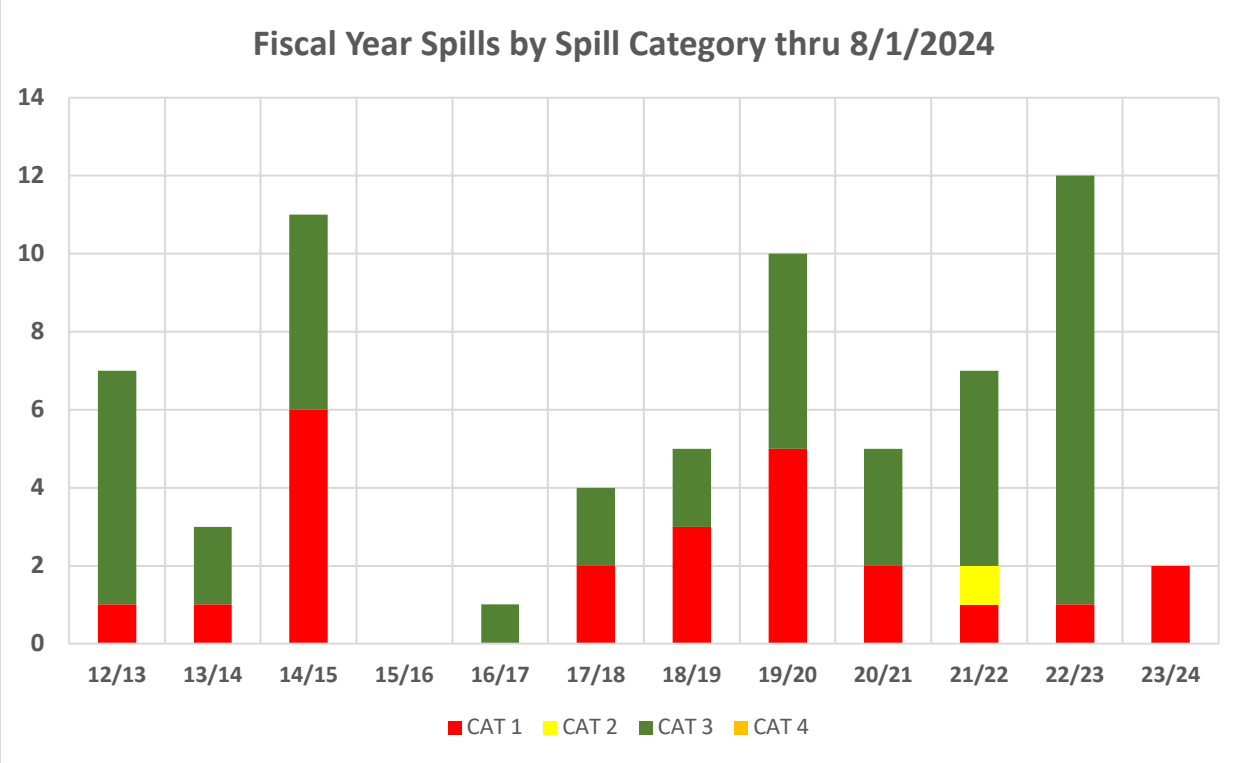
Spill Emergency Response Plan

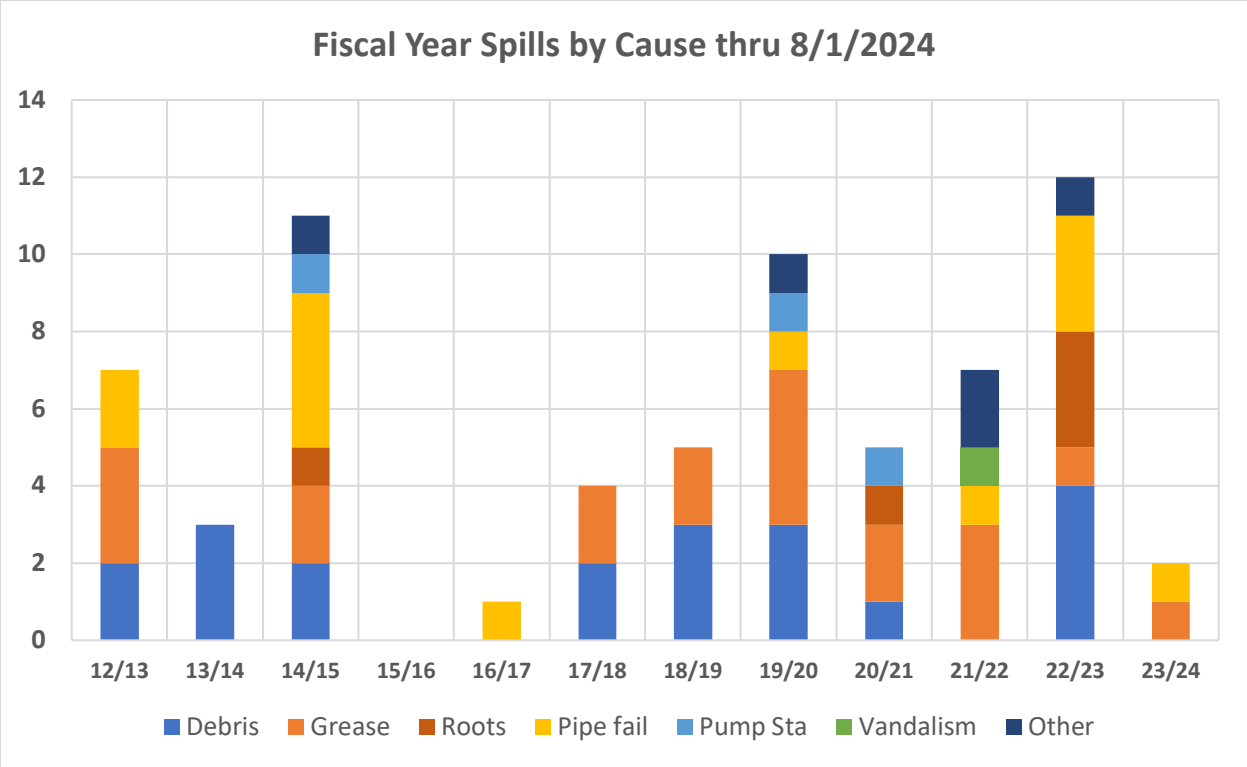
June 2023

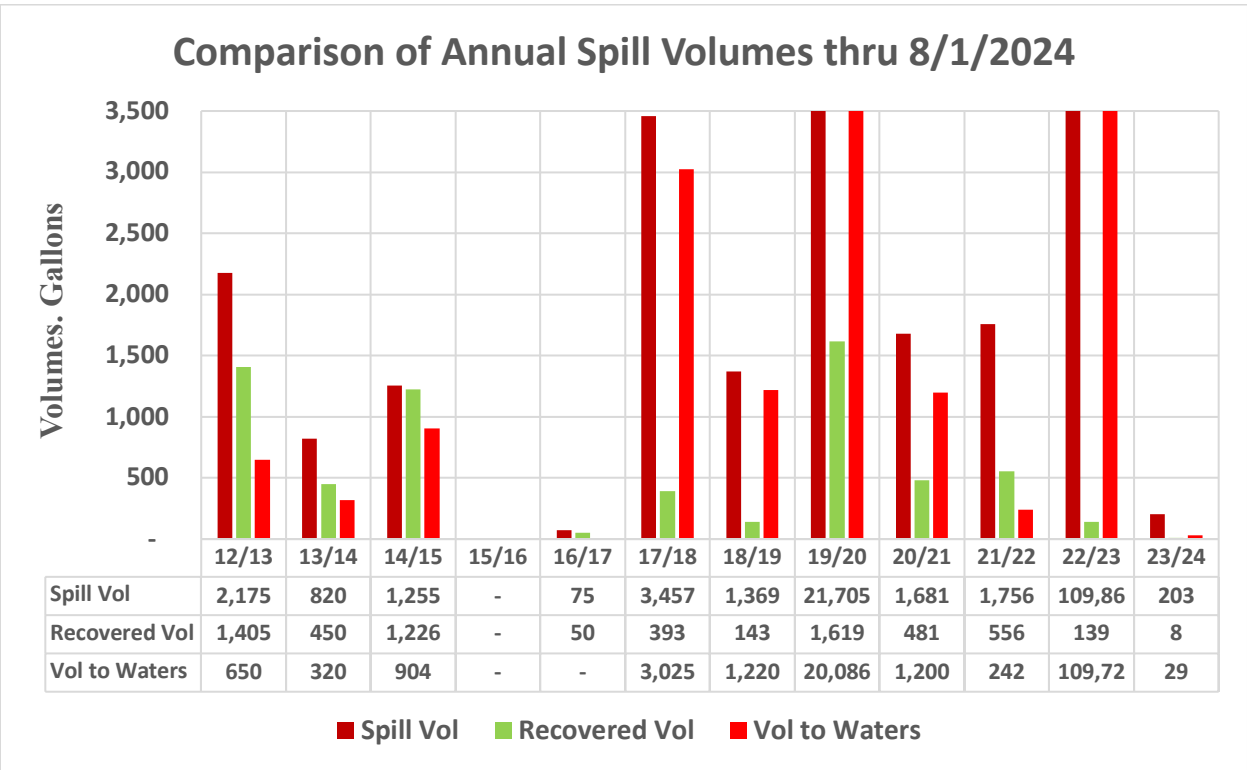
Appendix E: City Performance Results

Spill Performance Results

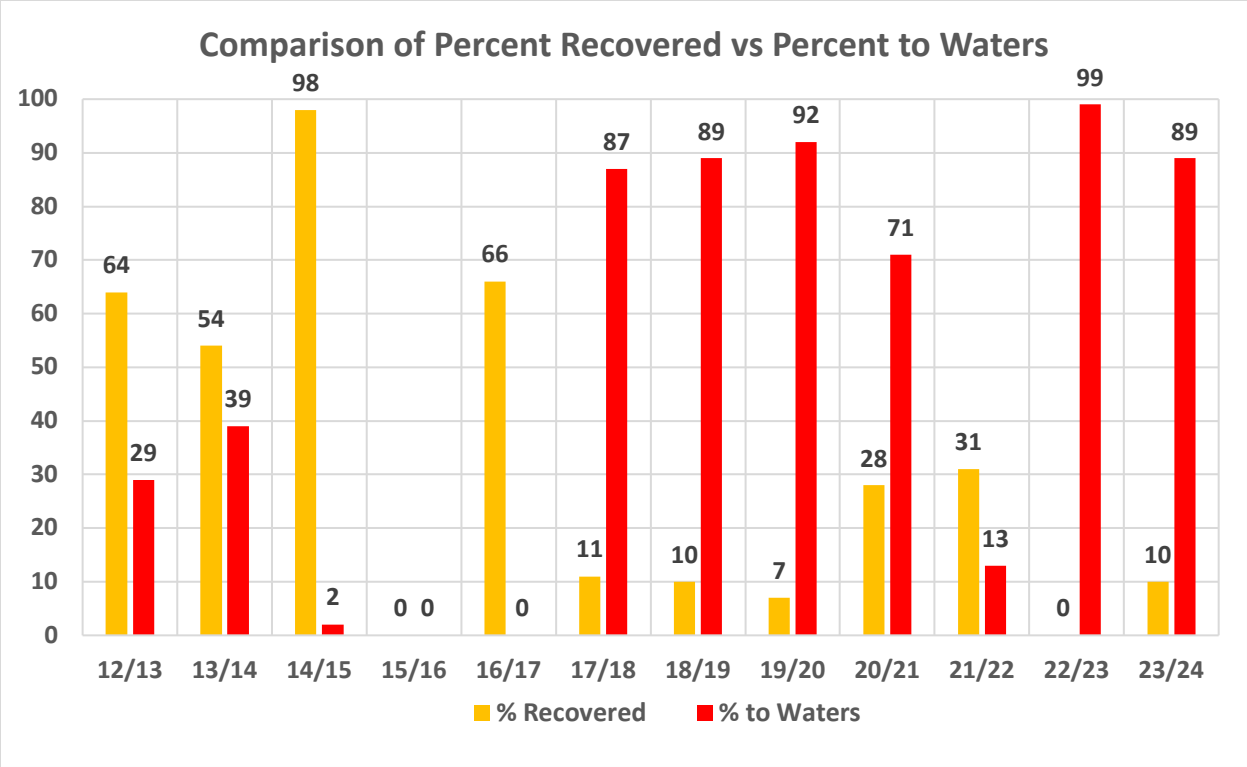


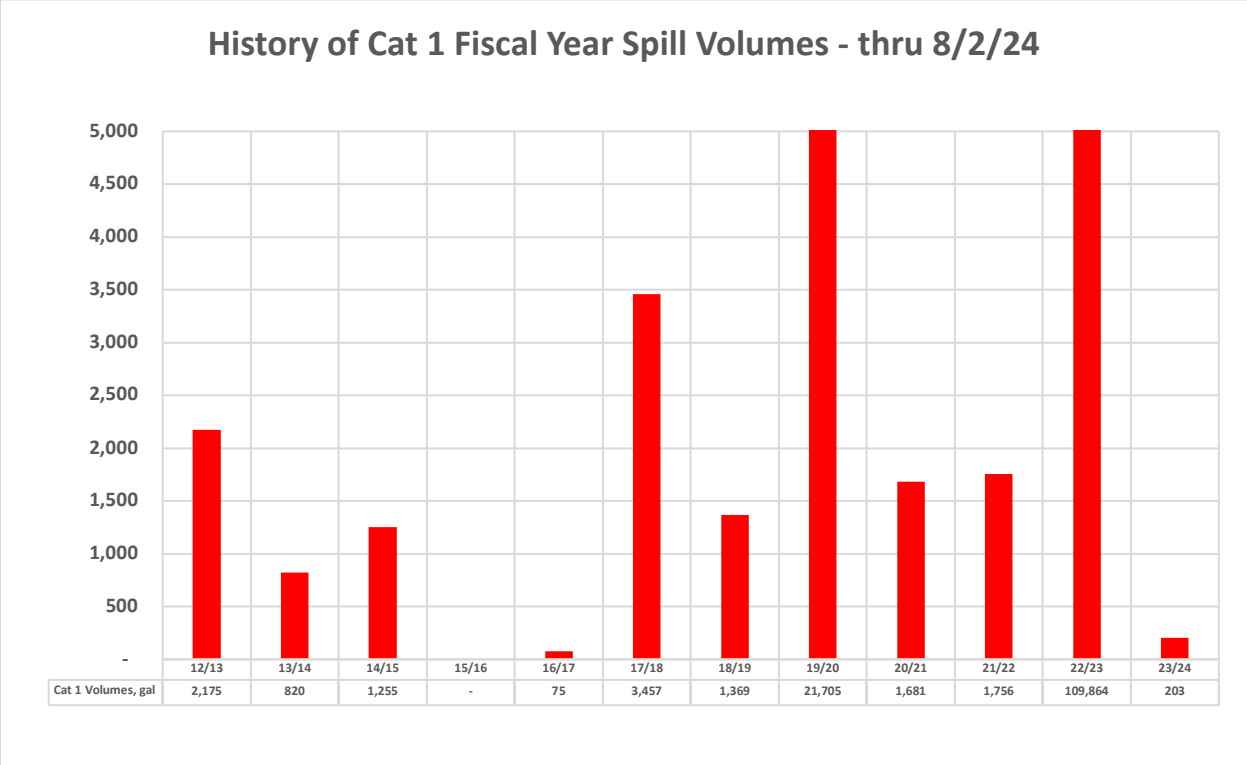


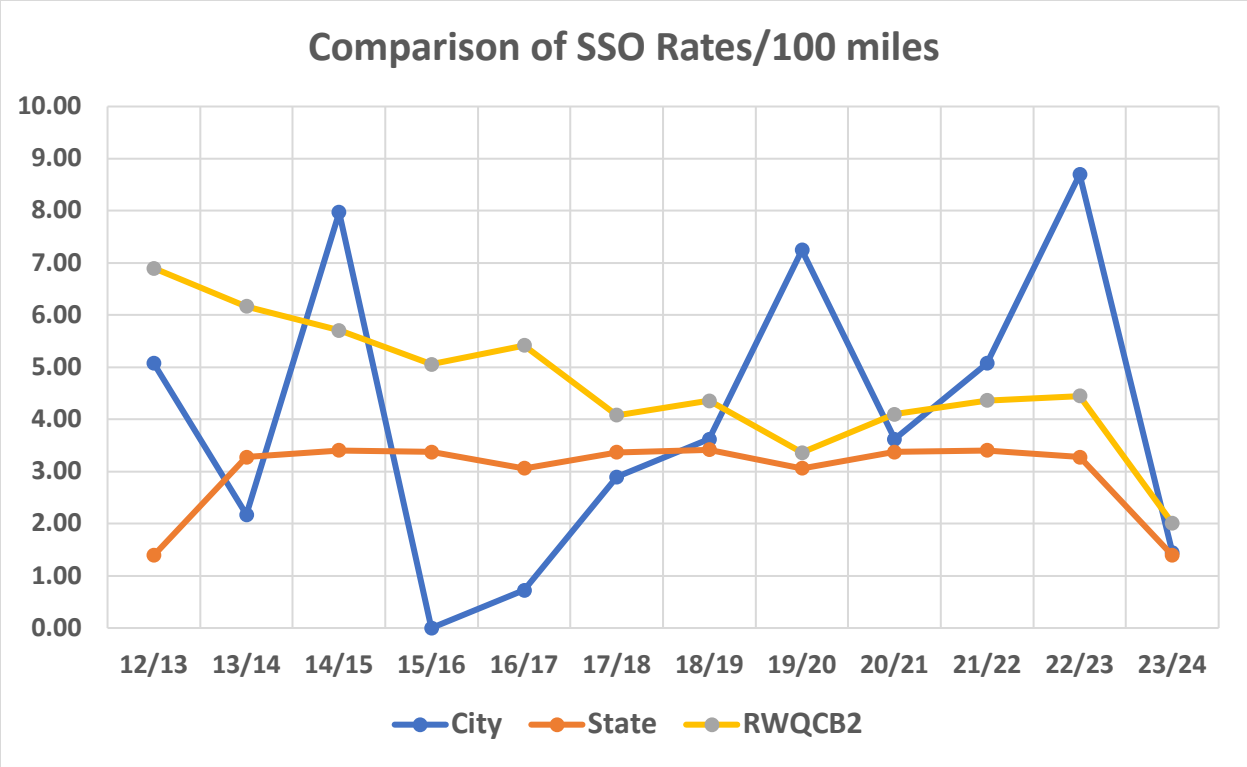




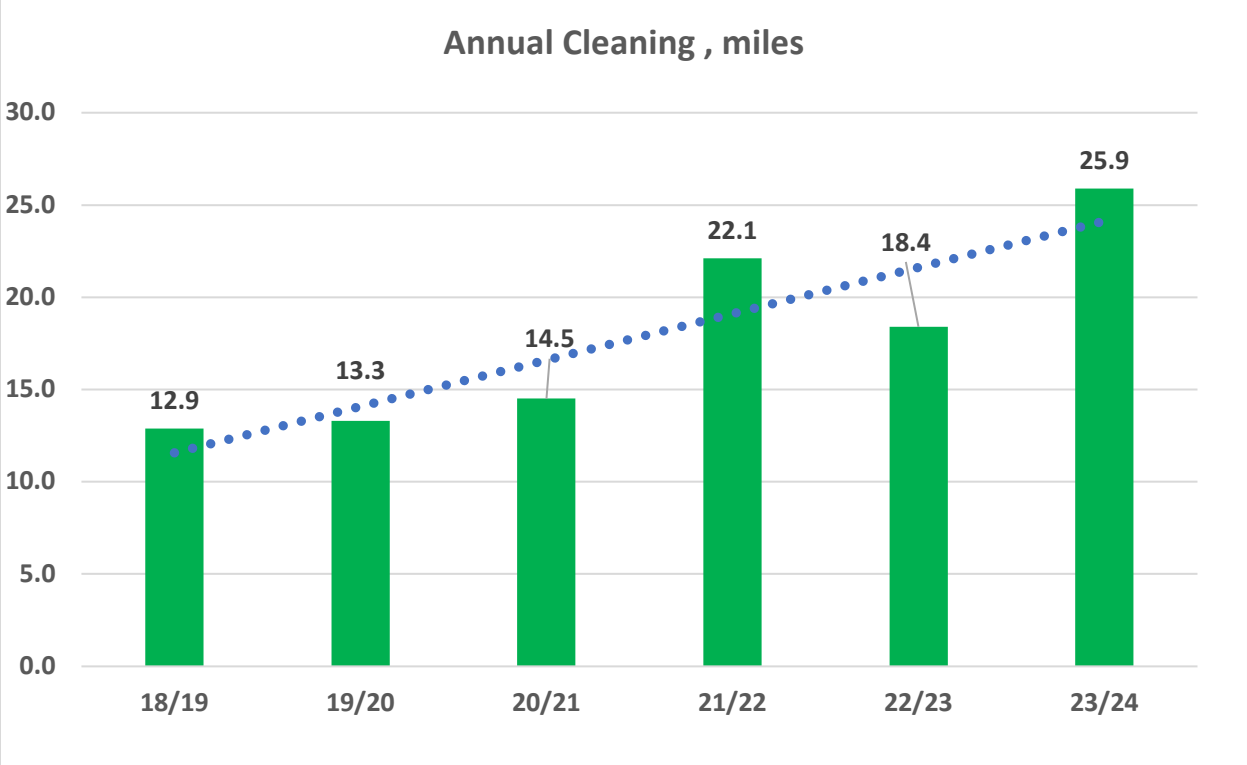
	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Spill Vol	2,175	820	1,255	-	75	3,457	1,369	21,705	1,681	1,756	109,86	203
Recovered Vol	1,405	450	1,226	-	50	393	143	1,619	481	556	139	8
Vol to Waters	650	320	904	-	-	3,025	1,220	20,086	1,200	242	109,72	29

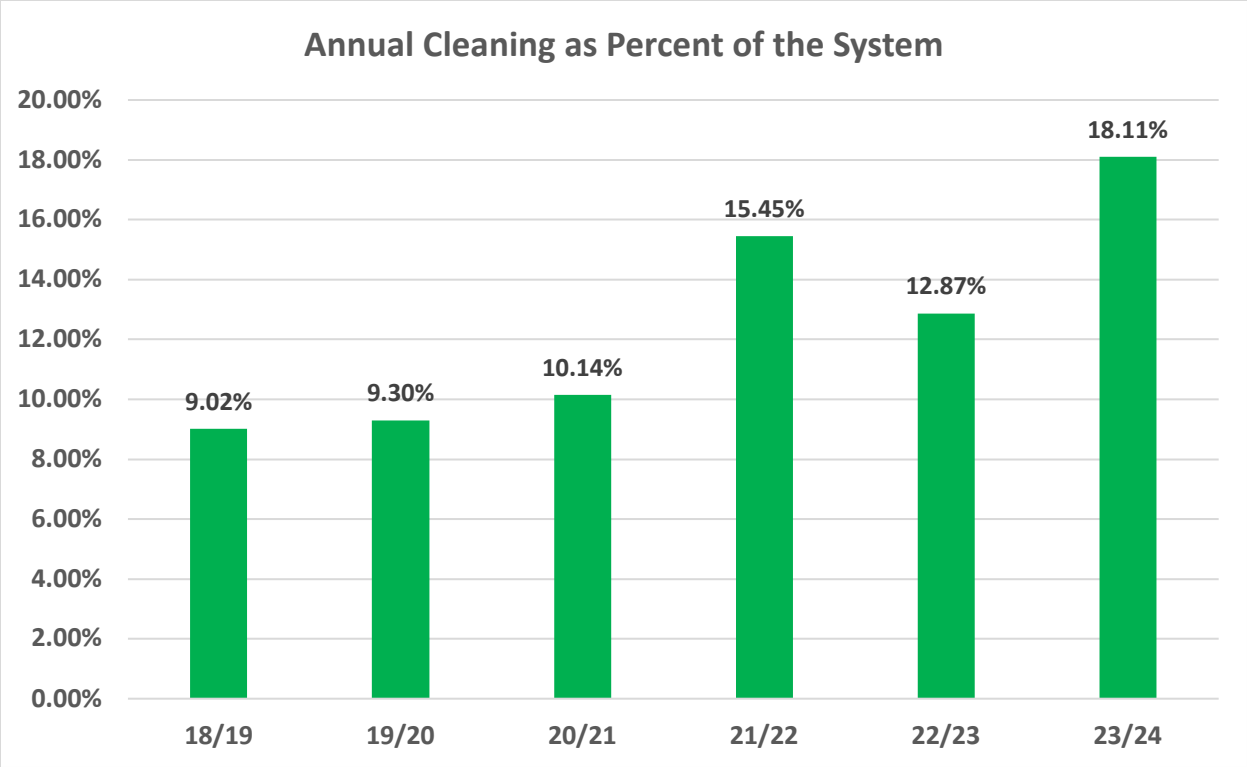

Comparison of Percent Recovered vs Percent to Waters
100
90
80
70
60
50
40
30
20
10
0
64
29
54
39
98
2
0 0
66
0
11
87
10
89
7
92
28
71
31
13
0
99
10
89
12/13
13/14
14/15
15/16
16/17
17/18
18/19
19/20
20/21
21/22
22/23
23/24
% Recovered
% to Waters

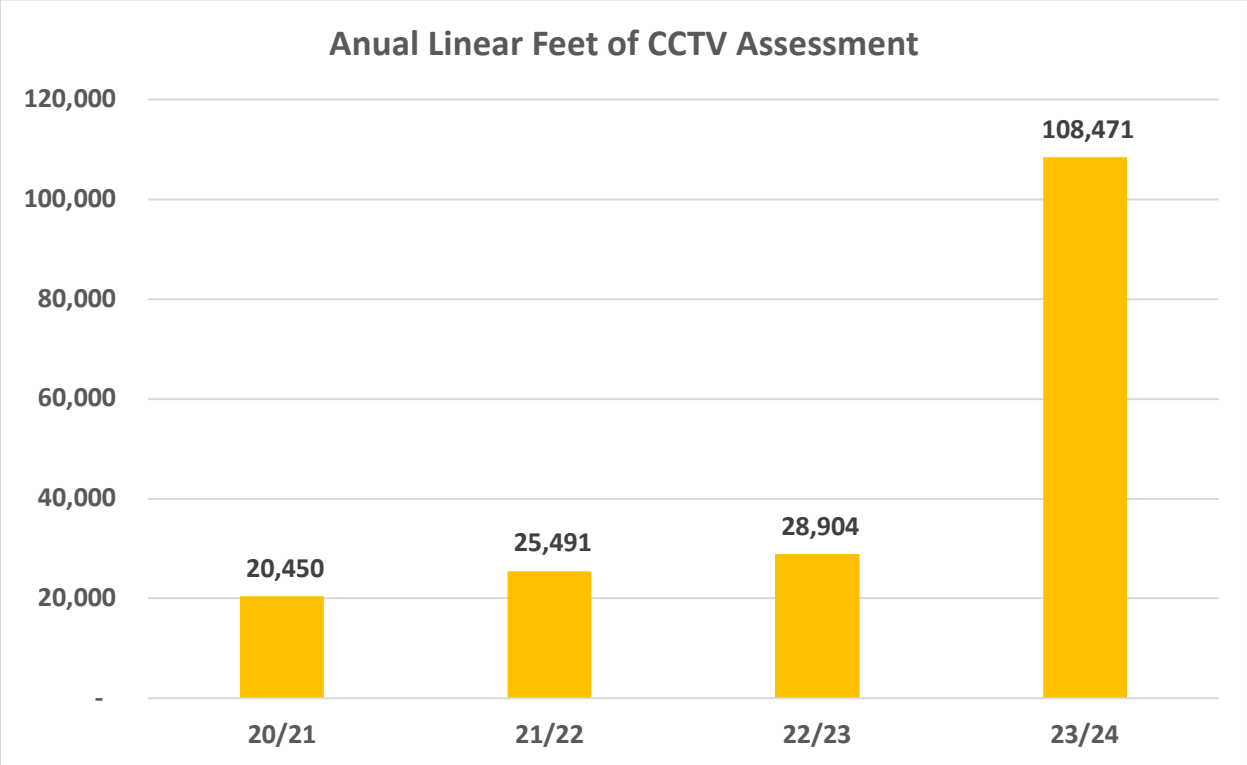

History of Cat 1 Fiscal Year Spill Volumes - thru 8/2/24
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
12/13
13/14
14/15
15/16
16/17
17/18
18/19
19/20
20/21
21/22
22/23
23/24
Cat 1 Volumes, gal
2,175
820
1,255
-
75
3,457
1,369
21,705
1,681
1,756
109,864
203

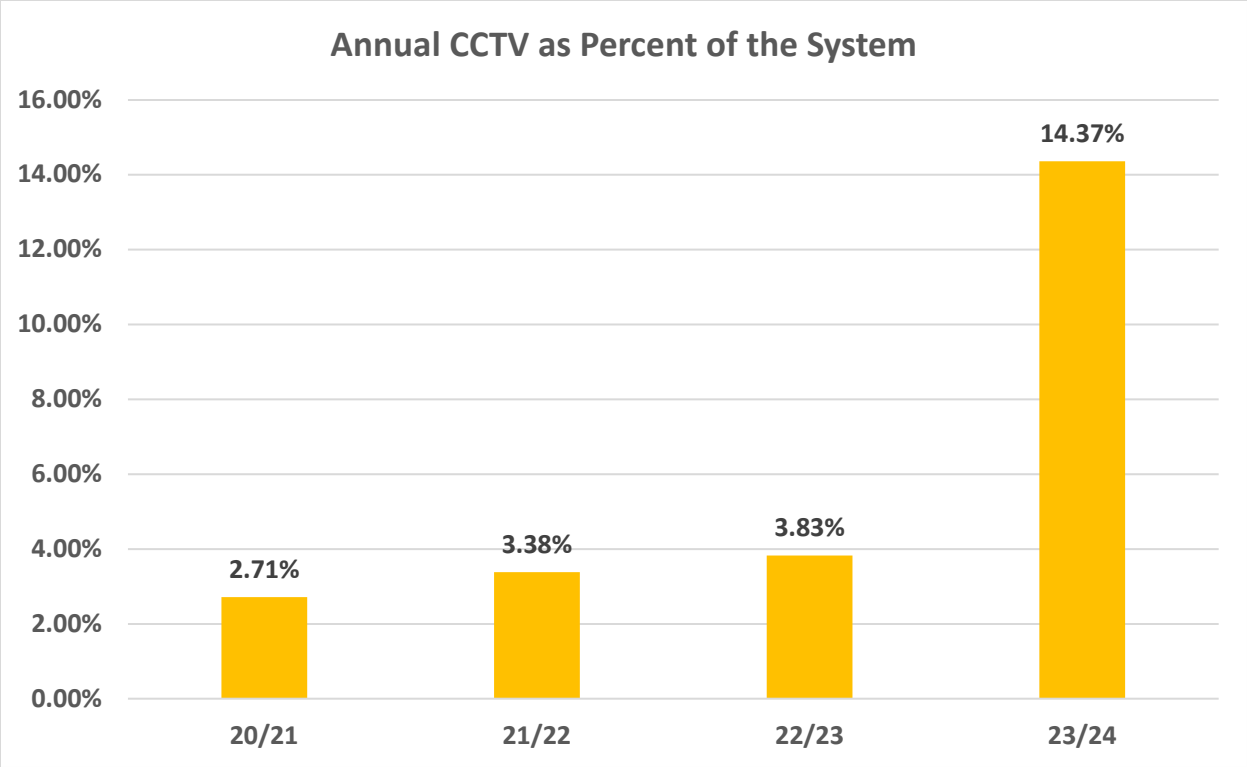


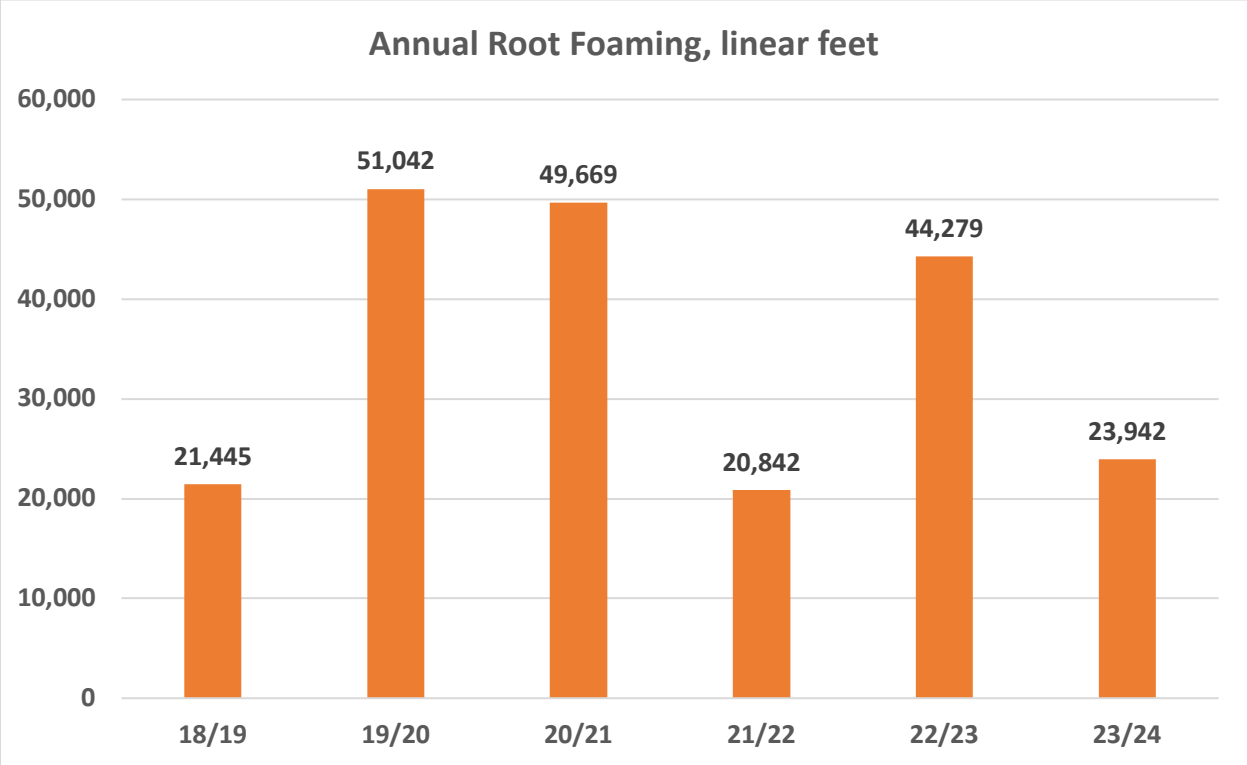
Operational Performance Results

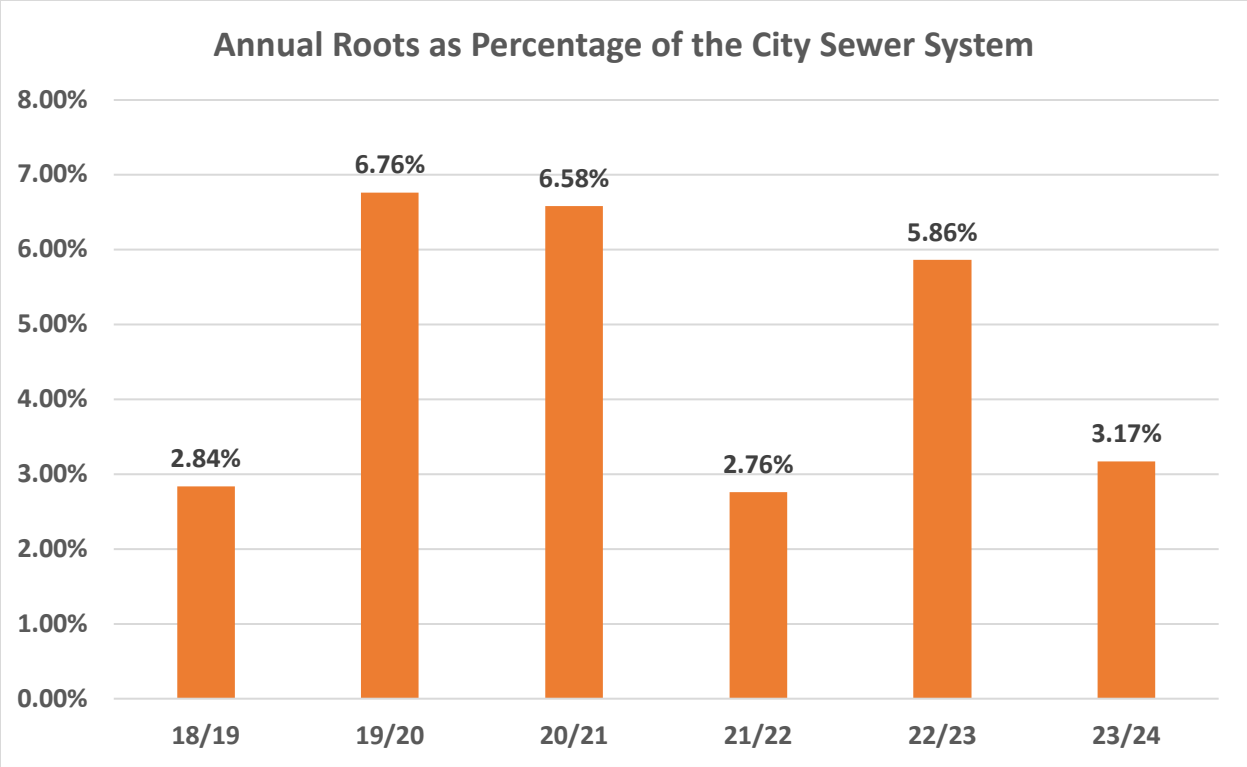



Annual Cleaning as Percent of the System
20.00%
18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
9.02%
9.30%
10.14%
15.45%
12.87%
18.11%
18/19
19/20
20/21
21/22
22/23
23/24


Anual Linear Feet of CCTV Assessment
120,000
100,000
80,000
60,000
40,000
20,000
-
20,450
25,491
28,904
108,471
20/21
21/22
22/23
23/24


Annual CCTV as Percent of the System
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
2.71%
3.38%
3.83%
14.37%
20/21
21/22
22/23
23/24


Annual Root Foaming, linear feet
60,000
50,000
40,000
30,000
20,000
10,000
0
21,445
51,042
49,669
20,842
44,279
23,942
18/19
19/20
20/21
21/22
22/23
23/24


Annual Roots as Percentage of the City Sewer System
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
2.84%
6.76%
6.58%
2.76%
5.86%
3.17%
18/19
19/20
20/21
21/22
22/23
23/24