



# **City of Los Altos Sewer System Management Plan**

February 2015

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## LIST OF REVISIONS

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Revision No.	Description of Revision	Date of Revision
2	Revision of telephone numbers and text issues, added Blue Oak Lane pump station	1.25.2011
	Insert color City Seal	
3	Reflects updated system information, recommendations, 10-year CIP and financial analysis provided in the 2011 Sewer Master Plan Update	9.21.2012
4	2014 Update based on results of the 2014 audit. Updated SORP reflects changes mandated in SWRCB Order No. WQ 2013-0058-EXEC	2.12.2015

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- APPENDIX D – Element 5 (Design and Performance Provisions) Supporting Documents
- APPENDIX E – Element 6 (Overflow Emergency Response Plan) Supporting Documents
- APPENDIX F – Element 7 (FOG Control) Supporting Documents
- APPENDIX G – Element 8 (System Evaluation and Capacity Management) Supporting Documents
- APPENDIX H – Element 9 (Monitoring, Measurement, & Program Modifications) Supporting Documents
- APPENDIX I – Element 10 (SSMP Program Audits) Supporting Documents
- APPENDIX J – Element 11 (Communication Program) Supporting Documents

**List of Abbreviations and Acronyms**

BACWA	Bay Area Clean Water Agencies
BAPPG	Bay Area Pollution Prevention Group
City	City of Los Altos
EEC	EEC Environmental
FOG	fats, oils, and grease
FSE	food service establishment
GCD	grease control device
MRP	Monitoring and Reporting Program
NASSCO	National Association of Sewer Service Companies
OERP	Overflow Emergency Response Plan
OES	Office of Emergency Services
PACP	Pipeline Assessment Certification Program (NASSCO)
RWQCB	Regional Water Quality Control Board, San Francisco Region
SORP	Sanitary Sewer Overflow Response Plan
SSMP	Sanitary Sewer Management Plan
SSO	Sanitary Sewer Overflow
SSS	Sanitary Sewer System
SWRCB	State Water Resources Control Board
Town	Town of Los Altos Hills
WDR	Waste Discharge Requirements

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This introductory section provides background information on the purpose and organization of this Sewer System Management Plan (SSMP) and provides a brief overview of the City's service area and sewer system.

### **SSMP Requirement Background**

This SSMP was initially prepared for compliance with requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB) pursuant to Section 13267 of the California Water Code, as described in the letter from the RWQCB to the City of Los Altos (City) dated July 7, 2005. The RWQCB letter mandated that the City prepare an SSMP following the guidelines in the SSMP Development Guide prepared by the RWQCB in cooperation with the Bay Area Clean Water Agencies (BACWA).

More recently, the State Water Resources Control Board (SWRCB) passed Order No. 2006-003 at its meeting on May 2, 2006, which requires all public wastewater collection system agencies in California with greater than one mile of sewers to be regulated under general Waste Discharge Requirements (WDR). The SWRCB action also mandates the development of an SSMP and the reporting of SSOs using an electronic reporting system maintained by the SWRCB. SSMP reporting requirements were recently updated through SWRCB Order No. WQ 2013-0058-EXEC, which is reflected in the updated Sewer Overflow Response Plan (SORP) included in this SSMP. In general, the SWRCB SSMP requirements are similar to the RWQCB requirements, but differ in organization and in some details.

For context, both the initial RWQCB and current SWRCB requirements are discussed in each section.

### **Document Organization**

This SSMP is intended to meet the requirements of both the RWQCB and the Statewide WDR. The organization of this document is consistent with the SWRCB guidelines, but the contents address both the RWQCB and SWRCB requirements. The SSMP includes eleven elements, as listed below. Each of these elements forms a section of this document.

1. Goals
2. Organization
3. Legal Authority
4. Operation and Maintenance Program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan
7. Fats, Oils and Grease (FOG) Control Program
8. System Evaluation and Capacity Management
9. Monitoring, Measurement, and Program Modifications
10. SSMP Program Audits
11. Communication Program

Each element section is organized into sub-sections, as follows:

1. Description of both the RWQCB and SWRCB requirement for that element
2. Identification of associated appendix and list of supporting information included in the appendix.
3. Discussion of element. The discussion may be split into multiple sub-sections depending on length and complexity.

Supporting information for each element is included in an appendix associated with that section, as applicable. In general, information expected to require relatively frequent updates (such as names and phone numbers of staff) are included in appendices, as well as other supporting information, such as forms or schedules.

### **City Service Area and Sewer System**

The City of Los Altos (City) is located in Santa Clara County and is surrounded by the Cities of Palo Alto, Mountain View, Sunnyvale, Cupertino, and the Town of Los Altos Hills. As of 2013, the City had a population of approximately 30,010 based on an estimate by the United States Census Bureau.

The City's sewer system consists of approximately 140 miles of pipe, ranging from 6 inches to 42 inches in diameter, and three pump stations (Pine Lane, Blue Oak Lane and Van Buren). The City provides sewer service to most businesses and residents within the City as well as unincorporated areas of Santa Clara County (County) that lie within the City's sphere of influence. The City's sewer system also receives some flow from the City of Mountain View and the Town of Los Altos Hills (Town). Collected sewage is conveyed to the Palo Alto Regional Water Quality Control Plant (RWQCP) for treatment.

## Element 1: GOALS

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This SSMP element identifies goals the City has set for the management, operation and maintenance of the sewer system and discusses the role of the SSMP in supporting these goals. These goals provide focus for City staff to continue high-quality work and to implement improvements in the management of the City’s wastewater collection system. This section fulfills the Goals requirement of both the RWQCB (Element 1) and the SWRCB (Element 1) SSMP requirements.

### 1.1 Regulatory Requirements for Goals Element

The summarized requirements for the Goals element of the SSMP are as follows:

#### **RWQCB Requirement:**

The collection system agency must develop goals to manage, operate, and maintain all parts of its collection system. The goals should address the provision of adequate capacity to convey peak wastewater flows, as well as a reduction in the frequency of sanitary sewer overflows (SSOs) and the mitigation of their impacts.

#### **SWRCB Requirement:**

The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

### 1.2 Element 1 Appendix

There is no appendix associated with Element 1.

### 1.3 Goals Discussion

Providing safe, responsive, and reliable sewer service is a key component to fulfilling the City’s mission statement: “The mission of our city staff, council, commissions, committees and volunteers is to foster and maintain the City of Los Altos as a great place to live and to raise a family.”

In support of this mission, the City has developed the following goals for the operation and maintenance of its sewer system. These goals are also adopted by the City’s Maintenance Services Department in the annual Operations and Maintenance program, which includes the sewer system. This document outlines responsibilities, allocates staff hours to Sewer Division work elements, and provides procedures and guidelines for maintenance and cleaning activities.

1. Minimize sanitary sewer overflows.
2. Prevent public health hazards.
3. Minimize inconveniences by responsibly handling interruptions in service.
4. Protect the large investment in collection systems by maintaining adequate capacities and extending useful life.
5. Prevent unnecessary damage to public and private property.
6. Use funds available for sewer operations in the most efficient manner.
7. Convey wastewater to treatment facilities with a minimum of infiltration, inflow and exfiltration.
8. Provide adequate capacity to convey peak flows.
9. Perform all operations in a safe manner to avoid personal injury and property damage.

This SSMP supplements and supports the City's existing Operations & Maintenance Program and goals by providing high-level, consolidated guidelines and procedures for all aspects of the City's sewer system management. The SSMP will contribute to the proper management of the collection system and assist the City in minimizing the frequency and impacts of SSOs by providing guidance for appropriate maintenance, capacity management, and emergency response.

## Element 2: ORGANIZATION

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This section of the SSMP identifies City staff that are responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements. This section also includes the designation of the Authorized Representative to meet SWRCB requirements for completing and certifying spill reports. This section fulfills the Organization requirement of both the RWQCB (Element 2) and the SWRCB (Element 2) SSMP requirements.

### 2.1 Regulatory Requirements for Organization Element

The summarized requirements for the Organization element of the SSMP are as follows:

#### **RWQCB Requirement:**

The collection system agency's SSMP must identify staff responsible for implementing measures outlined in the SSMP, including management, administration, and maintenance positions. Identify the chain of communication for reporting and responding to SSOs.

#### **SWRCB Requirement:**

The SSMP must identify:

1. The name of the responsible or authorized representative;
2. The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. Include lines of authority as shown in an organization chart or similar document with a narrative explanation; and
3. The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

### 2.2 Element 2 Appendix

Supporting information for Element 2 is included in Appendix A. This appendix includes the following documents:

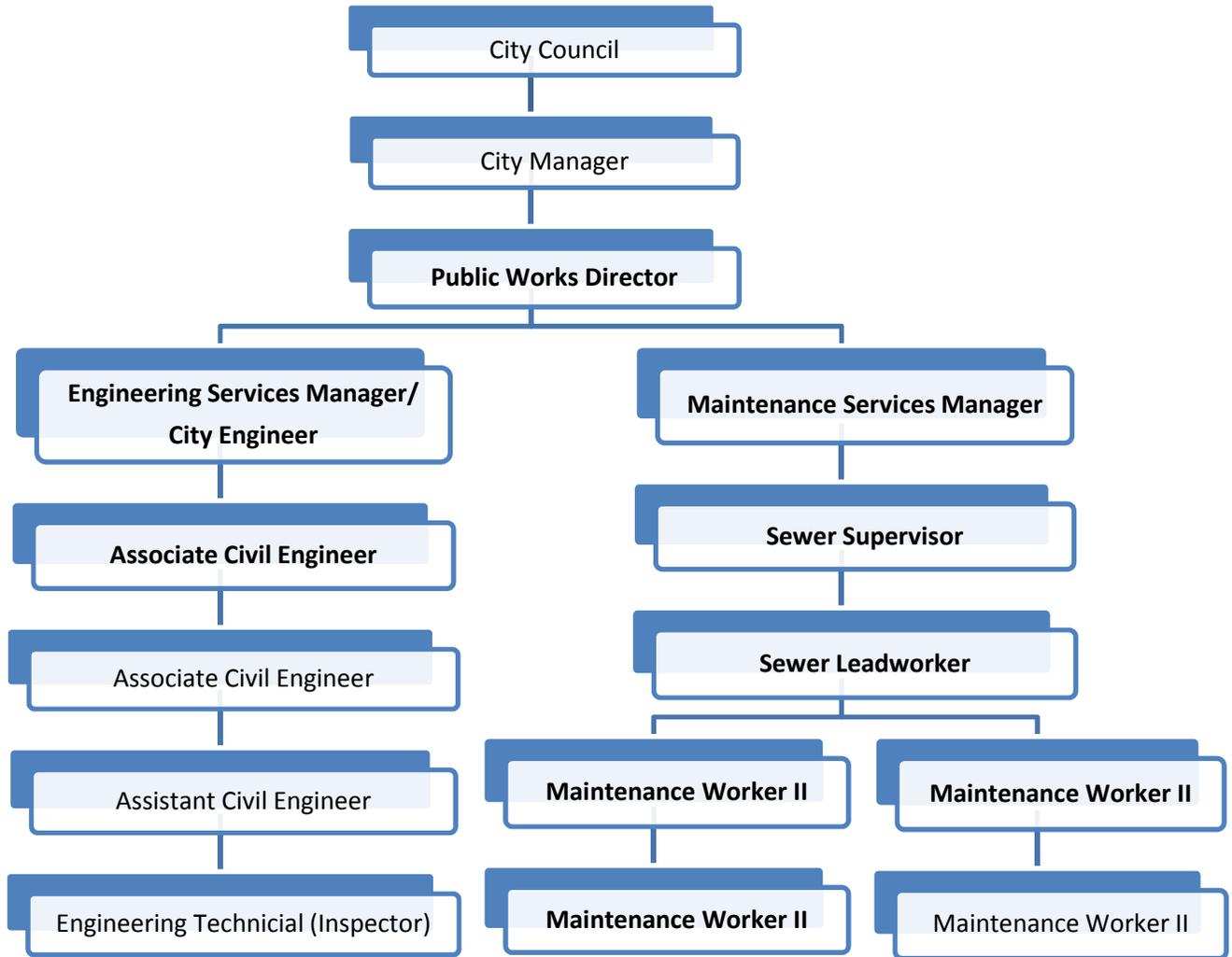
1. Table of sewer staff names and phone numbers (update as needed).
2. City of Los Altos Organization Chart (February 2015)

### 2.3 Organization Discussion

This section discusses the organization and roles of sewer staff, the authorized representative to the SWRCB, and key staff responsible for implementing and maintaining the SSMP.

**Department Organization**

The organization chart for the management, operation, and maintenance of the City’s wastewater collection system is shown on Figure 2-1. The names and phone numbers of staff filling these positions are included in Appendix A, Table 1. Names in bold font on the organization chart below relate to the listing of current staff positions in Appendix A.



**Figure 2-1. Organization Chart of Sewer Staff**

**Description of General Responsibilities**

Key Staff responsible for implementing and maintaining the SSMP:

Public Works Director. Plans, organizes, directs, and supervises the public works activities of the City. Advises the City Council and Planning Commission on engineering and public works matters, including those related to the collection system. Prepares and controls department budget. Reviews project plans and specifications for public works projects and performs technical engineering planning studies. Confers with engineering consultants and officials of other public works departments.

Engineering Services Manager / City Engineer. Works under the broad policy guidance and direction of the Public Works Director. Works to improve efficiency and effectiveness of operations. Assists the Public Works Director in development of department plans and programs, including sewer operations and the Capital Improvement Program. Supervises the review of private project development plans for compliance with codes, regulations, and standards, adequacy of applications for permits and compliance with approved plans. Oversees and coordinates sewer maintenance operations.

Associate Civil Engineer. Acts as project manager on public works projects, including sewer projects. Prepares plans, specifications, and preliminary cost estimates. Coordinates and confers with maintenance department on sanitary sewer system issues. Confers with contractors, consultants, and the public on engineering and construction matters. Prepares reports on sewer and other public works projects.

Assistant Civil Engineer. Under the guidance of the Associate Civil Engineer, acts as project manager on public works projects, including sewer projects. Prepares plans, specifications, and preliminary cost estimates. Coordinates and confers with maintenance department on sanitary sewer system issues. Confers with contractors, consultants, and the public on engineering and construction matters. Prepares reports on sewer and other public works projects

Maintenance Services Manager. Plans, organizes, and supervises the maintenance and repair of City public works infrastructure, including sewers. Manages the Municipal Service Center. Reviews plans and specifications for sewer and other projects, and makes recommendations regarding maintenance, construction, and operations aspects. Controls budget expenditures within the Maintenance Services Department. Confers with contractors, engineers, and members of the general public on construction and maintenance problems and procedures.

Maintenance Supervisor, Sewer. Supervises sewer maintenance workers. Schedules work assignments. Maintains records of projects assigned and completed, supplies and equipment used, and costs incurred. Investigates sewer-related complaints from the general public. Estimates needed equipment and equipment maintenance. Assists engineering with review and inspection of capital projects. Responsible for gathering information and material for SSO reporting to the State Board if an SSO occurs. Responsible for monthly reporting to the State Board along with an annual audit and SSO report.

Maintenance Leadworker, Sewer. Supervises and personally assists in the cleaning and repair of sewer mains and sewer laterals. Supervises and performs the operation of a variety of light and heavy equipment, including trucks, tractors, backhoes, rodding machines,. Schedules work for crews; trains crews in specific tasks; checks work of assigned crew to see that it was performed properly. Contributes to employee performance reviews and recommends disciplinary action as necessary. Prepares and maintains work records; establishes and maintains cooperative working relationships with subordinates, fellow employees and the general public. Responds to sewer calls and determines the location of blockage, cause of blockage, and then clears blockage. Operates and maintains sewer cleaning equipment including the combination flushing truck, straight flushing truck, sectional rodder, lateral rodder, and lateral televising camera.

Troubleshoots and performs minor repairs to the City's three pump stations. Recognizes hazards and follows safe operating procedures while responding to emergency calls.

Maintenance Worker II. Works as a member of a field maintenance crew. Cleans, unplugs, and repairs sewer lines and sewer laterals. Locates and raises manholes. Operates power equipment including combination flushing truck, straight flushing truck, sectional rodder, lateral rodder and televising camera.

The Maintenance Leadworker and the four Maintenance Workers II make up two, two-person sewer cleaning teams and one, one-person initial responder team. One two-person team, combined with the straight or combo flush truck, is responsible for the City's focused 30-, 60-, 90- day cleaning cycle. The other two-person team is responsible for 30-, 60-, 90-day cleaning as needed, cyclic cleaning, follow-up cleaning, supplemental cleaning and mainline CCTV of sewer mains with the lateral camera. The initial responder also performs Underground Service Alerts (USAs), lift station inspections and sewer lateral rodding.

### **Authorized Representative**

The City's authorized representative in all wastewater collection system matters is the Public Works Director. The Public Works Director is authorized to certify electronic spill reports submitted to the SWRCB.

The Engineering Services Manager / City Engineer is authorized to act in the Public Works Director's absence.

The Sewer Maintenance Supervisor is authorized to submit SSO reports to the appropriate government agencies.

### **Responsibility for SSMP Implementation**

The Public Works Director is responsible for implementing and maintaining all elements of this SSMP.

## **2.4 SSO Reporting Chain of Communication**

Table 2-1 lists contact phone numbers for the parties included in the chain of communication. Figure 2-2 contains a flowchart depicting the chain of communication for responding to and reporting SSOs, from observation of an SSO to reporting the SSO to the appropriate regulatory agencies. The SSO Reporting process is described in detail in Element 6: Overflow Emergency Response Plan.

**Table 2-1. Contact Numbers for SSO Chain of Communication**

<b>Contact</b>	<b>Telephone Number</b>
City Hall	(650) 947-2700
Municipal Service Center	(650) 947-2785
Police Department Dispatch Center	(650) 947-2770
Public Works Director	(650) 947-2621
Maintenance Services Manager	(650) 947-2871
Sewer Maintenance Supervisor	(650) 947-2873
Sewer On-Call Personnel	(650) 399-5480
California Office of Emergency Services	(800) 852-7550
County of Santa Clara Department of Environmental Health	(408) 918-3400
San Francisco Bay Regional Water Quality Control Board	(510) 622-2300

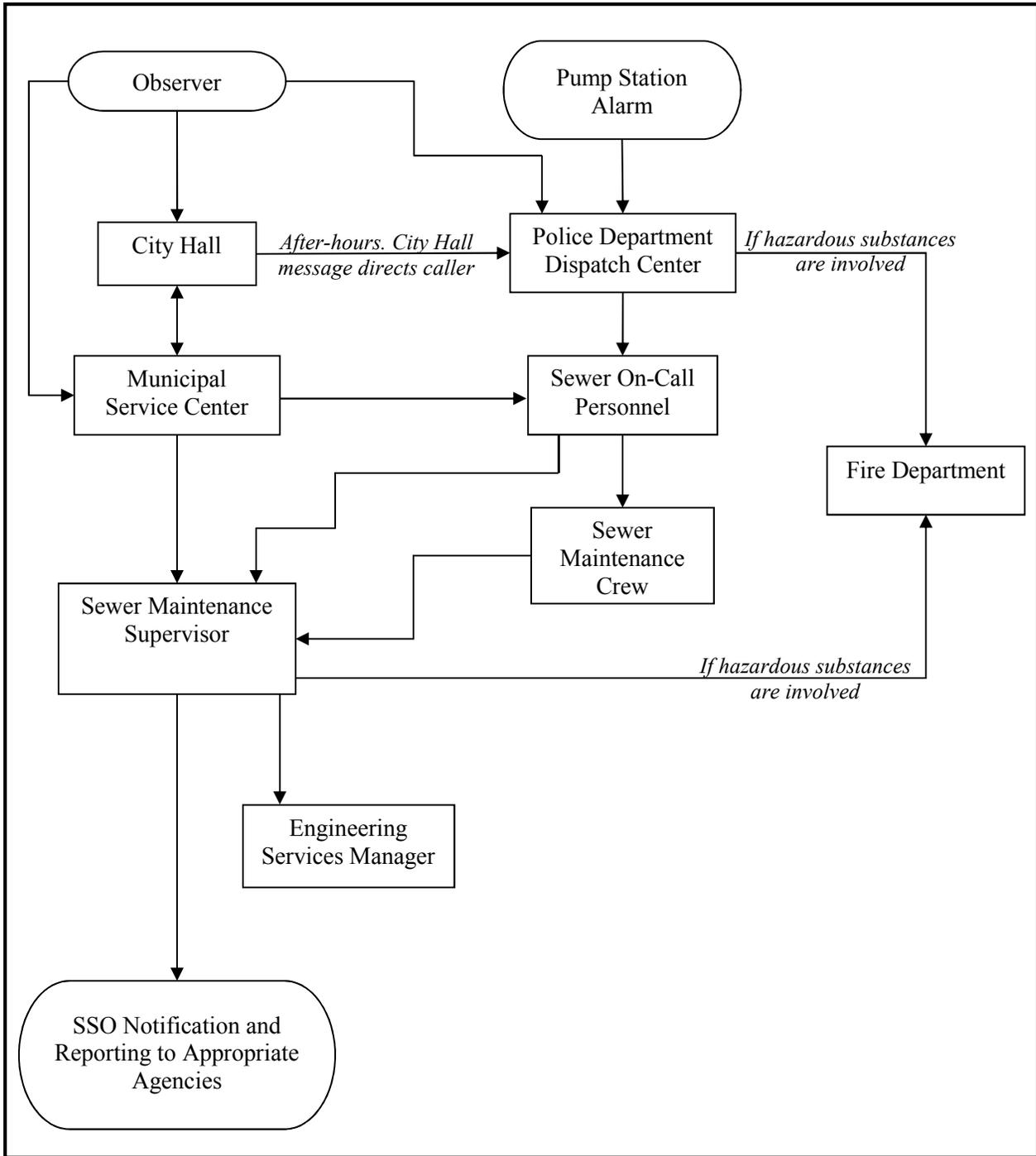


Figure 2-2. SSO Response Chain of Communication

## Element 3: LEGAL AUTHORITY

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This element of the SSMP discusses the City's Legal Authority, including its Municipal Code and agreements with other agencies. This section fulfills the Legal Authority requirement for the RWQCB (Element 5) and the SWRCB (Element 3).

### 3.1 Regulatory Requirements for Legal Authority Element

The requirements for the Legal Authority element of the SSMP are summarized below:

#### RWQCB Requirement

The City must demonstrate that it has the legal authority (through ordinances, service agreements, and other binding procedures) to control infiltration and inflow (I/I) from satellite collection systems and private service laterals; require proper design, construction, installation, testing, and inspection of new and rehabilitated sewers and laterals; and enforce violation of ordinances.

The SSMP should describe specific applicable legal mechanisms, with citations of names and code numbers of ordinances. If legal authority does not currently exist for a required element, the SSMP should indicate a schedule of activities to obtain the proper legal authority.

#### SWRCB Requirement

The City must demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- (a) Prevent illicit discharges into its wastewater collection system (examples may include infiltration and inflow (I/I), storm water, chemical dumping, unauthorized debris and cut roots, etc.);
- (b) Require that sewers and connections be properly designed and constructed;
- (c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;
- (d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and
- (e) Enforce any violation of its sewer ordinances.

### 3.2 Element 3 Appendix

Supporting information for Element 3 is included in Appendix B. This appendix includes the following documents:

1. Title 10 (Public Services) of the City Municipal Code
2. Diagram illustrating lateral maintenance responsibilities
3. Agreement between the City of Los Altos and the City of Mountain View, limiting Mountain View's discharge into the City's San Antonio trunk sewer

4. Agreement between the City of Los Altos and the Town of Los Altos Hills for transportation, treatment and disposal of sewage
5. Agreement between the City of Los Altos and Santa Clara County relating to sewer collection and treatment within unincorporated areas of the County and a portion of the City of Los Altos Hills referred to as “Los Altos Sanitary Sewers and Capacity Acquisition District”

### **3.3 Municipal Code**

The legal authority required for the SSMP by the RWQCB and the SWRCB is contained within the City’s municipal code. Three chapters of the municipal code are dedicated to the sewer system, all included in Title 10, Public Services:

- 10.04 Sewer Service System Generally. Provides regulations for the use and construction of sanitary sewer facilities installed, altered, or repaired within the City.
- 10.08 Sewer System Protection Regulations. Includes provisions to prevent and control pollution to protect human health.
- 10.12 Sewer System Fees and Charges. Discusses policies pertaining to fees, including service charges, billing and collection, and calculation of connection fees.

Chapters 10.04 and 10.08 as listed above pertain to the legal authority required for fulfillment of SSMP requirements. These chapters are included in full in Appendix B. Portions of these chapters are discussed in the following sub-sections as they pertain to prevention of illicit discharges, proper design and construction of sewer and connections, maintenance access, and enforcement measures.

#### **Prevention of Illicit Discharges**

All measures prohibiting illicit discharges are included in Chapter 10.08, Sewer System Protection Regulations. The specific purpose of the chapter is to prevent the discharge of any pollutant into the sewers that would obstruct or damage the collection system, interfere with treatment, or threaten harm to human health or the environment. Examples of discharges covered are included below. Refer to the municipal code included in Appendix B for the complete text.

- Stormwater and I/I. Section 10.08.150 prohibits discharge of any substance directly into a manhole or other opening in a city sewer, except through an approved building sewer. Section 10.08.230 prohibits discharge of unpolluted water, including stormwater, into a sanitary sewer through direct or indirect connection, unless the city has issued a permit. Furthermore, Section 10.08.370 expressly requires that stormwater and other unpolluted drainage be discharged into a storm sewer or approved natural outlet.
- Industrial Waste. Section 10.08.040 requires all industrial waste dischargers to obtain a permit and prohibits discharge in excess of the permit allowance. The permit issued may require pretreatment or include other provisions for wastewater quality and

quantity. Additional regulations (10.08.080 and 10.08.090) require periodic reporting for permit holders, as well as communication of requirements to personnel.

- Other Discharges. Section 10.08.200 prohibits discharge of any waste that could by itself or by interaction with other waste could, among other requirements, endanger human health, cause damage to the sewer system or extra collection, treatment, or disposal cost, create a nuisance, affect the treatment process, or impact treated water quality. Section 10.08.240 sets forth standards or prohibits discharge of several components, including (but not limited to) dyes, explosives, organic solvents, radioactive waste, solids, and toxic substances. Additional sections in Chapter 10.08 specify requirements for other discharges, including copper-based root control chemicals, photographic materials, and dental amalgam waste.

### **Proper Design and Construction of Sewers and Connections**

Regulations pertaining to the design, construction, and inspection of private sewer systems, building sewers, and connections are included in Chapter 10.04 of the Municipal Code.

- Permit Required. A permit is required prior to construction of any private sewage disposal system (section 10.04.140). A permit is also required prior to constructing a building or lateral sewer or connecting to a public sewer (section 10.04.200). Article 5 of this chapter lays out the requirements for obtaining a permit. The permit application may include review of plans and specifications by the City.
- Design Requirements. Section 10.04.220 in Article 4 of this chapter specifies the minimum size and slope of a building sewer, as well as the number of connections allowed to the building sewer. This article also provides regulations for sewers of adjacent buildings, old building sewers, and cleanouts. Section 10.04.160 in Article 3 specifies that private sewer systems must be designed in compliance with all recommendations of the state health department.
- Construction Requirements. Section 10.04.210 requires that construction of building sewers be in accordance with county and city requirements and that in case of conflict, the more stringent shall apply.
- Inspection and Testing. All building sewers and laterals must be tested in the presence of the Public Works Inspector.

### **Lateral Maintenance Access**

Property owners are responsible for maintaining the street and house lateral all the way to the main sewer, except for reconstruction or repair, per Section 10.04.290. Section 10.04.250 requires cleanouts at the junction of a building sewer and lateral sewer. This City has a diagram illustrating lateral maintenance responsibilities, included in Appendix B.

### **Limit Discharge of FOG and Other Debris**

As discussed under Element 7: Fats, Oils, and Grease (FOG) Control Program, Section 10.08.220 prohibits grease disposal, including discharge to any public or private sanitary sewer, and Section 10.08.280 requires a grease removal device for commercial or industrial grease generators. This section also includes requirements for cleaning grease removal devices.

Discharge of debris would be covered by Section 10.08.200, which, among other things, prohibits discharge of any waste that could create a nuisance, cause damage to the sewer system or cause extra collection, treatment, or disposal costs. Additionally, Section 10.08.240 prohibits discharge of solids that will obstruct or damage the collection system, and Section 10.08.150 prohibits discharge of any substances into a manhole. As noted under illicit discharges, however, the City plans to review the need for adding a more specific prohibition of disposal of debris and cut roots.

### **Enforcement Measures**

Different enforcement measures are available for enforcement of sewer provisions in Chapter 10.04 (use and construction of sanitary sewer facilities) and Chapter 10.08 (prevention and control of pollution).

Chapter 10.04, Article 6 includes enforcement measures for violations of provisions included in that chapter. Written notice is provided to persons in violation, with a time limit for correction. Further enforcement provisions include declaration of a public nuisance and disconnection from public sewers. The person in violation is liable to the city for expense, loss, or damage resulting from the violation.

Chapter 10.08, Section 10.08.440 through Section 10.08.470, includes enforcement measures for violations of provisions included in that chapter. Enforcement measures range from issuance of a notice of non-compliance to criminal penalties.

## **3.4 Control of I/I from Satellite Collection Systems**

Approximately half of the Town's sewer service area, as well as a small portion of Mountain View and County, discharge flow into the City's collection system. Therefore, these two entities can be considered satellite collection systems of the City. Although there are no known capacity problems due to I/I in the City's system (refer to Element 8: System Evaluation and Capacity Management), the SSMP requirements state that the City must demonstrate that it has the legal authority to control I/I into its collection system, including I/I from satellite systems.

The City of Mountain View discharges some flow into the City's San Antonio Trunk Sewer. As noted in Section 5.5 in the discussion about the agreement between the City and Mountain View regarding this sewer, Mountain View's flow to the San Antonio Trunk Sewer is metered and limited to 2 mgd peak flow. This contractual maximum capacity effectively limits the peak flow, and therefore the amount of I/I, that can enter the City's system from Mountain View. The agreement specifying this contractual maximum capacity, dated March 24, 1970, is attached in Appendix B.

Flow from the Town of Los Altos Hills enters the City's system. The latest agreement between the City and the Town, dated January 26, 2007 and amended on July 1, 2007, is attached in Appendix B.

### **3.5 Agreements with Other Agencies**

As noted in Section 3.3, the SSMP requirements for legal authority are fulfilled by the City's municipal code. However, the City does have additional legal agreements with other agencies, which are described in this section for reference. The City's interagency agreements include a joint sewer system agreement with the City of Palo Alto (Palo Alto) and the City of Mountain View (Mountain View), an Industrial Waste Control Agreement with Palo Alto, a San Antonio Trunk Sewer Agreement with Mountain View, a conveyance agreement with the Town of Los Altos Hills (Town), and an agreement for conveyance and operations and maintenance with the County of Santa Clara. These agreements are described in the following subsections.

#### **Joint Sewer System (JSS) Agreement**

The City entered into a joint agreement with Mountain View and Palo Alto on October 10, 1968 to provide additional sewage transmission, treatment and disposal facilities to meet the requirements of the Regional Board. The main items in the agreement are described below:

- Palo Alto was selected to own, maintain, and upgrade the wastewater treatment facilities and the City and Mountain View purchased capacity rights in the sewer pipeline and treatment system.
- Each city is required to perform an engineering study to redefine future needs when flow from its respective area reaches 80 percent of their acquired rights.
- Each city has the right to rent or purchase capacity from others in the joint system.
- Palo Alto is responsible for billing each of the member agencies its proportionate share for the construction, maintenance, and upgrade of the facilities. Costs are allocated based on each city's purchased capacity.
- Palo Alto is responsible for measuring and recording flow from each of the agencies.
- Excessive infiltration or inflow into the sewer system is not allowed by the cities.
- Sewage received by the party of the agreement from outside their territorial limits will be regarded as part of the party's capacity allocation.
- The basic agreement has an initial term of 50 years.
- The City's capacity at the Regional Plant is 3.6 mgd dry weather flow and 3.8 mgd annual average flow. The City's capacity in the interceptor between the City and the Regional Plant is 12.0 mgd for peak wet weather flow.

The basic agreement has been amended several times between 1977 through 2011; however, these addenda were primarily related to improvements, financing, and capacity and cost allocation for the Regional Plant.

#### **Industrial Waste Control Agreement**

The City entered into an agreement with Palo Alto that required the City to adopt and enforce its industrial waste ordinance. The ordinance is required to conform to the legal requirements contained in Federal Pretreatment Regulation published at 40 CFR 403. The agreement also requires the City to update the annual waste survey annually, issue industrial waste permits and take legal actions required to enforce the ordinance. Palo Alto performs this work for the City.

### **San Antonio Trunk Sewer Agreement**

Prior to the JSS, wastewater from the City and Mountain View was treated at a sewage treatment plant near the border of the cities. In 1961, Mountain View purchased capacity in the trunk sewer influent to the treatment plant. The treatment plant was abandoned when the new JSS was constructed. The new influent interceptor for the JSS began at the site of the abandoned treatment plant. The latest agreement with Mountain View is dated March 24, 1970. The agreement specifies that Mountain View has rights to 2 mgd of capacity in the trunk sewer which represents approximately 10 percent of the trunk sewer capacity. The agreement also specifies that flow entering the trunk sewer should be metered. The original meter measuring flow from Mountain View was out of service for several years. It was back in service in December 2004.

### **Town of Los Altos Hills Agreement**

The City has had sewer agreements since 1961 with the Town to convey the Town's wastewater and provide limited maintenance for the Town's sewer collection system. The latest agreement, dated January 26, 2007 and amended on July 1, 2007, supersedes all previous agreements. This agreement changes the way allowable capacity use by the Town is defined and measured, and also ceases all sewer maintenance responsibilities of the City within the Town.

Capacity rights for the Town are now based on winter water usage, instead of number of connections as in previous agreements. The Town is allowed to discharge 339,900 gallons per day total flow or 124.06 million gallons per year. The Town must notify the City and perform an engineering study when measured flows reach 80% of the maximum. An allowance for peak wet weather flows from the Town is based on comparison to the observed peaking factor in the City. The City is no longer responsible for operations and maintenance of sewers owned by the Town.

### **Santa Clara County Agreement**

The City has had a sewer agreement since 1968 with the County for wastewater conveyance and treatment and to provide maintenance for the sewerage collection system within certain unincorporated areas of the County and a portion of the Town of Los Altos Hills referred to as "Los Altos Sanitary Sewers and Capacity Acquisition District". The original agreement, dated August 19, 1968, stipulated that the County would pay capacity acquisition charges to the City for the provision of sewage conveyance and treatment from 2979 units within the County and 500 units in Los Altos Hills.

The County was required to form an assessment district for the portion of its areas which lie within the City's Master Plan (October 1965) for sanitary sewers, and was responsible for constructing the sewage system in the areas stipulated by the agreement. The City accepted responsibility for operating, maintaining, and managing said facilities. The capacity acquisition charge paid to the City by the County covered all costs associated with transmission, treatment and disposal facilities in existence at the time of the agreement or to be constructed prior to June 30, 1984 to serve the City. The City is entitled to collect service and connection charges from all properties within the assessment district, and all properties constituting legal building sites are entitled to connect to the sewerage collection system upon payment of the connection charge.

## Element 4: OPERATION AND MAINTENANCE PROGRAM

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This section of the SSMP discusses the City's operations, maintenance and other related measures and activities. This section fulfills the Operation and Maintenance Program requirement of both the RWQCB (Element 6) and the SWRCB (Element 4) SSMP requirements.

### 4.1 Regulatory Requirements for Measures and Activities

The requirements for the Operation and Maintenance element of the SSMP are summarized below. Since requirements for this SSMP element contain several categories, this summary is organized by category, with RWQCB and SWRCB requirements described for each category as applicable.

#### Collection System Map

RWQCB Requirement: The wastewater agency must maintain up-to-date maps of its collection system facilities. The SSMP should describe the type of maps currently being used, along with procedures for updating the maps with new and rehabilitated facilities.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments, manholes, pumping facilities, pressure pipes, valves, and applicable stormwater conveyance facilities.

#### Resources and Budget

RWQCB Requirement: The wastewater agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system. The SSMP should demonstrate that the resources are adequate for an acceptable delivery of the agency's services.

SWRCB Requirement: None.

#### Prioritized Preventive Maintenance

RWQCB Requirement: The wastewater agency shall prioritize its preventive maintenance activities. The SSMP should describe the system currently used for prioritized preventive maintenance and any plans, as needed, to maintain the integrity of the system and reduce the frequency of SSOs.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must describe routine preventive operation and maintenance activities by staff and contractors; including a system for scheduling regular maintenance and cleaning of the sanitary sewer system, with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders.

### **Scheduled Inspections and Condition Assessment**

RWQCB Requirement: The wastewater agency shall identify and prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them. The SSMP should describe the approach currently used for scheduled inspections and condition assessment of the sewer collection system. The approach should address criteria and results for short-term and long-term prioritization of corrective actions based on identified structural or other deficiencies.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must develop rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan.

### **Training**

RWQCB Requirement: The wastewater agency shall provide training on a regular basis for its staff in collection system operations, maintenance, and monitoring. The SSMP should include a description of the agency's training program and whether any changes or improvements are anticipated in the near future.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must provide training on a regular basis for staff in sanitary sewer system operations, maintenance, and require contractors to be appropriately trained.

### **Contingency Equipment and Replacement Inventories**

RWQCB Requirement: The wastewater agency shall provide contingency equipment to handle emergencies, and spare/replacement parts intended to minimize equipment/facility downtime. The SSMP should summarize the agency's critical spare parts inventory and list major equipment used for sewer system operation and maintenance.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must provide equipment and replacement part inventories, including identification of critical replacement parts.

### **Outreach to Plumbers and Building Contractors**

RWQCB Requirement: The wastewater agency must implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices for preventing blockages in private laterals. This requirement can be met by participating in a region-wide outreach program.

SWRCB Requirement: None.

### 4.2 Element 4 Appendix

Supporting information for Element 4 is included in Appendix C. This appendix includes the following documents:

1. Agendas and minutes from City Council meetings adopting the 2011 Sanitary Sewer Master Plan Update
2. Sewer section of the City's Operation and Maintenance Program
3. Focused cleaning schedules
4. Equipment Inventory
5. PG&E Safety Tips brochure

### 4.3 Collection System Map Discussion

The City has block book maps of their sewer and storm drain systems in pdf format, with each block book sheet covering approximately 0.25 sq. mile. Maps are printed into a map book for use by maintenance and engineering staff. Each manhole has an assigned ID based on the block book grid in which it falls. The block book maps show the manhole ID, pipe length, flow direction, and pipe diameter, as well as street names, parcels, and parcel IDs. The City also has pump station plans or as-built drawings for reference.

The block book maps and MapGuide are based on the City's GIS files of the sewer system, which contain some system data, including pipe upstream and downstream manholes, pipe diameter, pipe material, pipe length, pipe slope, location (street or easement), as-built plan, and comments. The database includes fields for pipe inverts, manhole invert and manhole depth, but does not currently include data for these attributes. These GIS files were originally created in the late-1990s and are based on as-built drawings.

Additional data were developed during preparation of the City's 2005 Sewer Master Plan. Inverts for trunk mains were taken from as-built drawings, and inverts from smaller diameter mains were derived based on pipe slopes and the elevation at the connection to the trunk. All City sewer data is stored in the GIS. The City accesses this information through the internet using Autodesk MapGuide that is hosted and maintained by California CAD, Inc.

When errors are discovered on the maps, the error is noted on a printed copy of the block book map page. Pages with errors are filed by the Engineering Division, and batch updates to the GIS and map book are completed periodically. Since the City is built out, no new sewers are expected to be added to the GIS.

The City currently has an annual CIP project to update the GIS.

#### **4.4 Resources and Budget Discussion**

The City funds sewer system services, including operations, maintenance, and capital projects, through a sewer fund. This fund is user-supported; it uses revenue from rate payers to fund sewer-related work. The City currently has adequate resources and budget to provide sufficient operations, maintenance, and repair of the collection system as required by the SSMP, and the City re-evaluates its budget every two years.

The City prepares a formal Service & Financial Plan every two fiscal years. The most recent plan was prepared in 2013, and covers fiscal years (FY) 2013/2014 and 2014/2015. A 5-year CIP is also prepared with each Financial Plan. The City's most recent Sewer Master Plan was completed in 2005 and updated in 2011. Many of the CIP recommendations from the 2005 Master Plan have been completed, and a number of them are included in the City's current biennial budget through FY 2012/13. The CIP recommended by the 2011 Master Plan Update began in FY 2013/14 with the appropriation of funds to the Sewer Operating and Capital Improvements Budgets for FY 2013/14 and beyond.

The 2011 Sewer Master Plan Update includes a 15-year Financial and Economic Analysis (Chapter 9). This analysis evaluates the impact of Master Plan Update CIP implementation costs upon the City's sewer system rates, fund balance, and reserve levels. The findings from this analysis indicate that the City has the capacity to fund all capital improvement program and equipment replacement costs on a pay-as-you-go basis with no additional debt service. In order to support the City's CIP and operating costs, this analysis projects average annual increases in sewer rates for single-family residential accounts of six percent beginning in FY 2013/14.

The City's budgeted staff for wastewater collection system operation and maintenance is listed in Table 3-3 of the 2011 Master Plan Update. The City currently employs a full time Sewer Supervisor, one Leadworker, four full time Maintenance Workers II, and one Associate level engineer and one Engineering Service Manager / City Engineer (partial) with a combined full time equivalent (FTE) of 1.25. The Sewer Lead Worker and Maintenance Workers function in two, two-person sewer cleaning teams with a single initial responder. The crews also perform CCTV of laterals and sewer mains with the City's equipment. The initial responder handles Underground Service Alerts (USAs), lift station inspections, and sewer lateral rodding. The two engineers manage the City's ongoing CCTV and root foaming projects and provide mapping and GIS updates. After the completion of the 2005 Master Plan, the Sewer Supervisor position was filled by the person previously performing the Maintenance Leadworker position. The Leadworker position was eliminated at the time, but City staff feels that this position is critical to the overall operation of the department and would be useful for direction of the maintenance worker staff.

#### **4.5 Prioritized Preventive Maintenance Discussion**

The City does prioritize its preventive maintenance activities. The preventive maintenance program includes scheduled focused and cyclic cleaning, root control, and regular inspection of pump stations, as well as investigation of customer complaints. The following subsections summarize the City's preventive maintenance activities. For additional information, refer to the City's Operations and Maintenance Program, prepared annually, and Chapter 3 from the 2011

Sewer Master Plan Update. The portion of the Operations and Maintenance Program specific to the Sewer Division is included in Appendix C.

**Sewer Cleaning**

Cleaning is the City’s primary sewer maintenance activity. The City has both frequent, focused cleaning as well as cyclic cleaning for pipes not on the focused cleaning schedule. These two cleaning programs are discussed below.

a) Focused Cleaning.

Approximately 73,500 lf of sewers (11% of the system) are included in the focused cleaning program, with cleaning on a 30, 60, or 90 day schedule. Cleaning frequency depends on the history and causes of stoppages or overflows on a line. Table 4-1 summarizes the total length of sewers cleaned by frequency, and Figure 4-1 shows which sewers are included in the program. Focused cleaning is performed primarily by jetting.

**Table 4-1. Length of Sewers in Focused Cleaning Program**

Cleaning Frequency (days)	Pipe Length (feet)	Annual Length (feet)
30	21,360	256,320
60	20,235	121,410
90	31,885	127,540
Total (feet)	73,480	505,270
Total (miles)	14	95

The City’s Maintenance Division maintains tables of each manhole-to-manhole reach scheduled for 30, 60, or 90 day cleaning. These tables are included in Appendix C. These tables are also used as cleaning logs, on which maintenance workers note the date and time of flushing, as well as the debris type and severity.

b) Cyclic Cleaning.

Sewers smaller than 15 inches in diameter that are not included in the focused cleaning program are cleaned on an 18-month cycle goal (67 percent per year). This cycle is aggressive compared with industry standards, but it has significantly lowered the City’s dry weather stoppage and SSO rate since 2005 and is achievable with current staffing levels. Assuming there are approximately 114 miles of small diameter gravity pipe (excluding the focused cleaning pipes in the table above), the annual cyclic cleaning goal is approximately 400,000 feet.

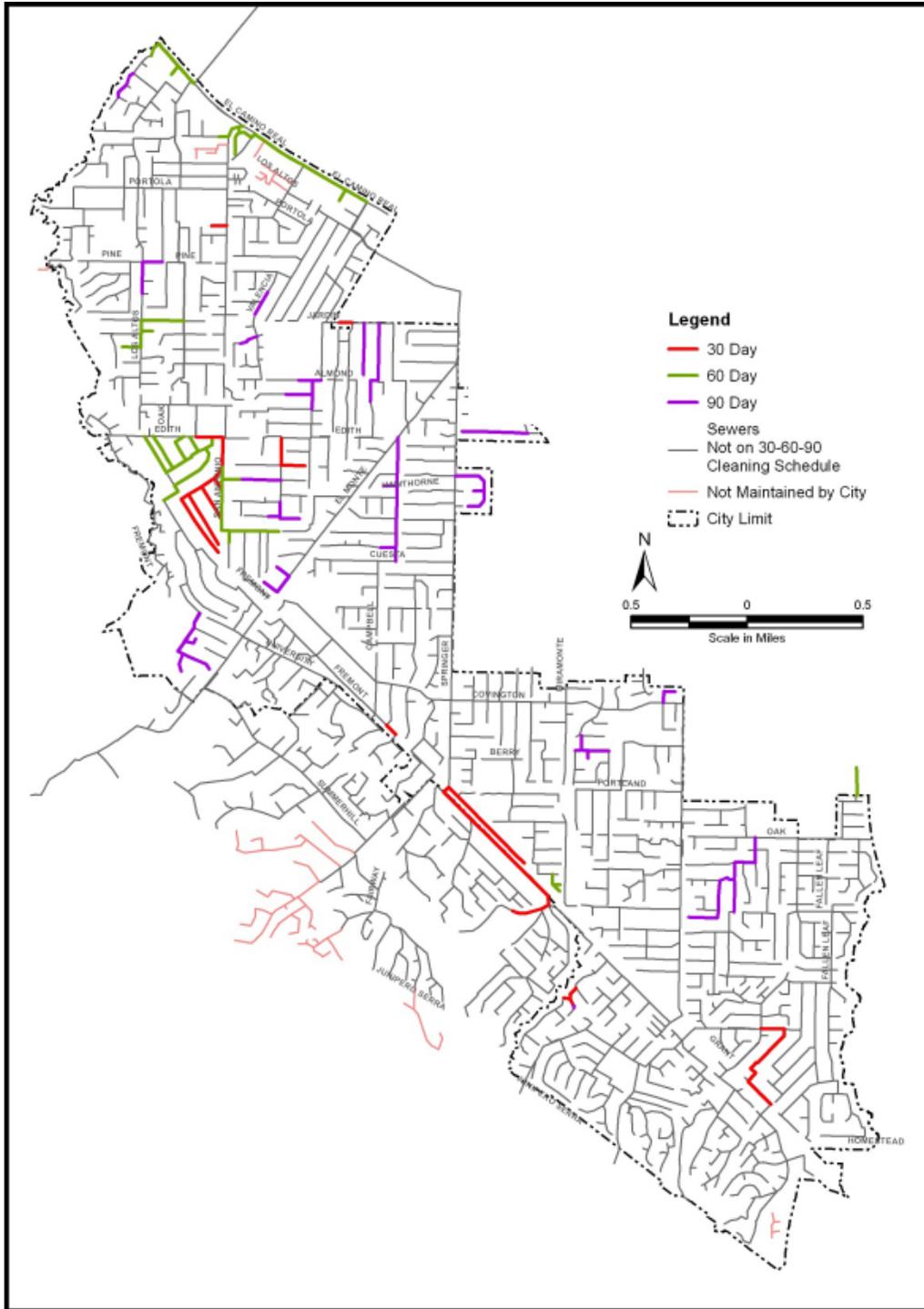


Figure 4-1. Sewers in Focused Cleaning Program

### Root Control

The City has a cyclic root foaming program and covers approximately one third of the system per year.

If roots are determined to be an issue following CCTV inspection, cleaning, or response to complaints, root cutting is performed with chain flail attachments on the jetters or with mechanical cutters.

### Pump Station Maintenance

City maintenance staff perform a weekly inspection of the City's three pump stations from the surface (no confined space entry). Weekly inspections and necessary repairs are performed by maintenance staff at all three pump stations. An outside contractor is contacted as needed. The generators are inspected and maintained by maintenance staff.

### Odor Control

The City has not recently received any odor complaints.

### Corrosion Control

Over 90 percent of the pipe material in the City's collection system is vitrified clay pipe (VCP), which is inert and does not need corrosion control. The City's collection system does, however, contain a large-diameter (24- to 42-inch-diameter) reinforced concrete pipe (RCP) trunk sewer which is known to have moderate to severe corrosion. The CIP recommended in the 2011 Sanitary Sewer Master Plan Update includes projects to rehabilitate selected pipes over the next fifteen years. Several of the reaches were already rehabilitated from FY 2005/06 forward.

The City also has some asbestos cement pipe (ACP), which is susceptible to corrosion. The City replaced much of this ACP pipe during the 5-year CIP following the 2005 Master Plan. Additional ACP reaches were found during recent CCTV inspections and are included for replacement in the CIP recommended by the 2011 Master Plan Update.

CIP projects related to corrosion are described in Chapter 7 of the City's 2011 Master Plan Update, and the schedule for these projects is shown in Appendix K, Table 2 of that document.

### Investigation of Customer Complaints

The City responds to customer complaints about sewer service. Complaints are generally related to sewer stoppages, overflows, or odors. Response is performed by the collection system staff during work hours and the standby worker during after hours. Response includes assessing the complaint and resolving the problem.

The majority of the complaints are related to stoppages. During work hours, a cleaning crew is diverted to remove stoppages. Most of the stoppages occur in laterals. Although crews respond to all stoppage complaints, they are not responsible for clearing stoppages in laterals. The City's initial response time goal is 30 minutes. During non-work hours, the City has staff on standby to address complaints.

### **Maintenance Management and Work Orders**

The City's Maintenance Department currently uses a program called OPRA developed by Package Products and Services (PPS) Inc. It is an Internet-based computerized maintenance management system (CMMS) that manages maintenance work orders.

### **4.6 Scheduled Inspections and Condition Assessment Discussion**

The City's 2011 Sewer Master Plan Update included a condition assessment, and rehabilitation projects were included in the CIP based on this assessment. The assessment covered over 90% of the City's sewer pipes and was based on CCTV inspection data collected over the previous four years. CCTV inspection of the remainder of the system is expected to be completed in the next one to two years. As delineated in the Master Plan Update, the City plans to continue CCTV sewer inspections on an annual basis (10-year cycle) and develop additional prioritized rehabilitation projects to address identified deficiencies.

This section includes a summary of the approach and results of the condition assessment from the 2011 Master Plan Update, as well as the City's plans for continuing CCTV inspections and condition assessments. Specific CIP projects identified in the Master Plan Update are described in Chapter 7 of the Master Plan Update, and the CIP project schedule is in Appendix K, Table 2 of that document. This schedule includes both short-term and long term projects.

#### **Manhole Inspection**

As part of the focused and cyclic cleaning programs, City maintenance staff visually inspect manholes for corrosion, debris and damage around the base, cracks and holes, and condition of manhole steps.

Manhole inspection data is recorded on manhole inspection sheets and kept in binders. The 2011 Master Plan Update recommended that the City adopt the National Association of Sewer Services Companies (NASSCO) Manhole Assessment Certification Program (MACP) standards for future manhole inspections.

#### **Pipeline Inspection**

The City has conducted several phases of CCTV inspection of its sewer pipes, beginning in 1994. Information from inspections conducted prior to 2005 was used to develop CIP recommendations included in the 2005 Master Plan. Between 2007 and 2010, the City performed CCTV inspection of approximately 93 percent of the collection system. Inspection contractors used NASSCO's Pipeline Assessment and Certification Program (PACP) defect coding standards in the 2007-2010 inspections. This total includes inspection of the large diameter RCP trunk sewer, which was last inspected in 2002; however, the trunk sewer inspection videos were reviewed in 2009 and coded in conformance with PACP. The trunk sewer is anticipated to be inspected again in 2012. For additional information on recent CCTV inspections, refer to Chapter 2 of the 2011 Master Plan Update.

Per the Capital Improvement Program, the City's next CCTV Inspection project will be in FY 17/18. The specifications for this contract require use of the PACP defect coding system, which will allow the City to continue to consistently analyze CCTV inspection results. Table 2-2 of the

2011 Master Plan Update includes a condensed table of the PACP coding system. Comprehensive information on the PACP/MACP systems can be found in the PACP Reference Manual, Version 6.0.1 (November 2010), available from NASSCO.

### **Pipeline Condition Assessment and Rehabilitation**

As noted above, the 2011 Master Plan Update included a pipeline condition assessment based on CCTV inspection data collected between 2007 and 2010. Inspections included approximately 641,500 lf of small diameter pipe (18-inch and smaller), which is about 93% of the City's small diameter sewer system. In order to objectively assess the need for rehabilitation and repair, a numeric structural condition rating was assigned to each CCTV reach based on the number, type, and severity of structural defects observed during the CCTV inspection. The structural condition rating was then used to group inspected lines into three condition assessment rating categories corresponding to poor (A), moderate (B), and good (C) structural conditions. Reaches containing very severe structural defects (PACP structural grades 4 and 5) were automatically assigned a poor condition assessment rating (A), regardless of the number of defects on the reach. Corrosion in the large diameter RCP trunk sewer was evaluated separately. The City's 2009 trunk sewer condition assessment report is included as Appendix E of the 2011 Master Plan Update.

Overall, the 2011 Master Plan Update condition assessment found the collection system to be in good condition. Of the small diameter pipes included in the assessment, approximately 92% were in good condition, 3% in moderate condition, and 5% in poor condition. The 2011 Master Plan Update condition assessment differs vastly from the 2005 Master Plan condition assessment because defects were rated differently. The PACP coding system used in the 2011 Update considers sags and offset joints to be O&M problems rather than structural defects, so they no longer enter into the structural condition rating calculation.

The most numerous severe structural defects were broken pipes, followed by fractures. The Master Plan Update includes CIP projects to address pipes in poor condition, and prioritizes these projects based on the condition rating. Pipes with sags and other O&M defects were recommended for rehabilitation in the 2011 CIP only if they were also found to correlate with high frequency cleaning areas (30-, 60-, or 90-day). The City also has an annual CIP project for on-going pipe rehabilitation, as discussed in Chapter 7 of the Master Plan Update.

In order to continue to effectively identify and prioritize sewer rehabilitation and repair needs, the City plans to apply the same PACP rating system to future CCTV inspection results. The City will use the system to facilitate the development of the scope for the annual sewer repair CIP projects.

### **Pump Station Inspections and Assessment**

The mechanical and electrical condition of the City's Pine Lane and Van Buren lift stations was assessed for the 2005 Master Plan. The assessment included site visits and review of plans. Site inspections were performed from ground level and did not include confined space entry. Based on this assessment, major rehabilitation was recommended for both lift stations and was included in the near-term CIP. In 2011, the City completed the two pump station replacement projects. The Blue Oak lift station was installed in 2010.

Pump stations are inspected on a weekly basis. Weekly inspections include visual check of the equipment, manual cycling of pumps, checking and cleaning floats, recording hour meter readings, and cleaning off debris.

### 4.7 Training Discussion

The City budgets for training its sewer maintenance staff each year, and the Maintenance Department has an extensive training program and will continue to review its training program to meet the demands of maintaining the sewer system.

The City encourages sewer staff to become CWEA certified, and providing training opportunities to enable all sewer maintenance staff to become and remain certified is a goal of the City. The City assists with certification by paying for the preparation course, certification exams, and required continuing education. The City also provides training tapes and manuals for employees for both work and home study. As nearly all of the City's current sewer maintenance staff is certified, the current focus is on continuing education to maintain certification.

The City uses numerous outside programs, as well as providing in-house and on-the-job training for sewer maintenance crews. Training programs that the City uses are listed below:

- CWEA
- ABAG
- APWA
- Maintenance Superintendent Association
- Vendor sponsored training
- Safety training
- In-house training by supervisor and lead workers
- Safety tailgate meetings by experienced staff or vendors

For in-house training the City uses the Operation and Maintenance of Wastewater Collection Systems (by Kenneth D. Kerri). All field training is supervised by an experienced certified operator. New employees and operators work with an experienced senior operator for at least three months or until they can demonstrate competency in each skill set. Though the training listed is mainly for the maintenance crews, occasionally the training sessions are attended by the engineering staff as well.

To ensure that contractors for the City have appropriate training, the City will consider incorporating language in its standard specifications to require contractors working on City facilities to be adequately trained for sanitary sewer collection system work. Contractors performing CCTV inspection are required to have their operators trained and certified through NASSCO's PACP.

## **4.8 Contingency Equipment and Replacement Inventories**

The City maintains an equipment inventory. All sewer maintenance equipment and replacement parts are stored at the City's Municipal Service Center. Equipment and replacement parts are periodically replaced based on the estimated useful and remaining life. The recommended replacement schedule is shown in Table 8-2 of the 2011 Master Plan Update. The City's equipment inventory list is included in Appendix C.

The City keeps spare/replacement parts in inventory to minimize facility downtime in the event of an unplanned failure. Spare parts include spare manhole lids; hoses, pumps, valves, and heads for maintenance and emergency response equipment. City pump stations include redundant systems to reduce impacts of a failure.

Pump stations and the City's trunk main are considered "critical" parts of the system. Contingency equipment stored by the City to support an effective response to emergency conditions include sewer bypass pumps and piping, emergency backup generator, and Vac-Con truck. The City stores adequate inventory for responding to overflow emergencies.

## **4.9 Outreach to Plumbers and Building Contractors Discussion**

PG&E prepared an outreach brochure for drain cleaners, sewer cleaners, and plumbers with safety tips on when natural gas lines intersect sewer lines. The outreach brochure is also attached in Appendix C.

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## **Element 5: DESIGN AND PERFORMANCE PROVISIONS**

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This section of the SSMP discusses the City's design and construction standards. This section fulfills the Design and Performance Provisions requirement of both the RWQCB (Element 7) and the SWRCB (Element 5) SSMP requirements.

### **5.1 Regulatory Requirements for Design & Construction Standards**

The requirements for the Design and Performance Provisions element of the SSMP are summarized below.

#### **RWQCB Requirement**

The City shall identify minimum design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems. The City should evaluate if the existing design standards are appropriate and up to date. If the City believes its current standards are appropriate, the City can refer to the documentation that already exists.

The City shall also identify procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances; and for rehabilitation and repair projects. The SSMP may refer to existing documentation.

#### **SWRCB Requirement**

- (a) The City must have design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sewer systems.
  
- (b) The City must also have procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

### **5.2 Element 5 Appendix**

Supporting information for Element 5 is included in Appendix D. This appendix includes the following documents:

1. Table of Contents of the City's Standard Specifications and Standard Plans (January 2012 Edition)
  
2. List of Drawings in the City's Standard Plans (May 2010 Edition)

### 5.3 Design & Construction Standards Discussion

The City recently updated its standard plans and specifications. The current versions are the January 2012 Edition (Specifications) and the May 2010 Edition (Plans). The City also utilizes the latest editions of the California Department of Transportation Standard Specifications and “Standard Specifications for Public Works Construction” (known as the “Greenbook”), prepared by the American Public Works Association and the Associated General Contractors of California.

Section 10 of the City’s standard specifications addresses sanitary sewer installation. This section includes specifications for pipe, manhole, cleanout, and sewer lateral materials and construction methods (including acceptable methods for sewer taps), as well as sewer line testing (exfiltration or air), acceptance, final inspection by CCTV, and abandonment of existing sewer mains. These requirements should provide reasonable assurance that sewers constructed to these specifications will perform adequately with minimal infiltration or maintenance problems and will maintain their structural integrity for the duration of their intended useful lives.

Many of these specifications included in Section 10 of the City’s standard specifications would also apply to sewer pipeline rehabilitation and repair projects. Additional specifications related to sewer rehabilitation and repair will be added as needed when such projects are implemented by the City, or will be included in project-specific specifications.

The City owns only three small pump stations and does not anticipate any additional pump stations to be built because the City is built out. Therefore, pump station plans and specifications are not included in the standards. Design standards and construction specifications for pump stations will be developed as needed on a project-specific basis should any new pump stations or pump station rehabilitation projects be implemented.

All public sewer mains within the City are designed and constructed by the City or under contract to the City. The City does not currently have formal sewer design standards, but follows accepted design practice and industry standards, such as the ASCE Manual of Practice. The City may consider formalizing these design standards as part of the update of the standard plans and specifications. The City’s Municipal Code contains design requirements for building sewers, including minimum sizes and slopes (Section 10.04.220). Design flow and capacity criteria for sewer mains and trunk lines are described in the current Sewer Master Plan.

Appendix D includes the table of contents and list of plans from the City’s standard specifications and plans.

## **Element 6: OVERFLOW EMERGENCY RESPONSE PLAN**

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This section of the SSMP provides an overview and summary of the City's emergency response documents and procedures for sewer overflows. Complete documentation of overflow response procedures are attached in Appendix E. This section fulfills the Overflow Emergency Response Plan requirement of both the RWQCB (Element 3) and the SWRCB (Element 6) SSMP requirements.

### **6.1 Regulatory Requirements for Overflow Emergency Response Plan Element**

The summarized requirements for the Overflow Emergency Response Plan element of the SSMP are as follows:

#### **RWQCB Requirement:**

The collection system agency must develop an overflow emergency response plan (OERP) that provides procedures for SSO notification, response, reporting, and impact mitigation. The response plan should be developed as a stand-alone document and summarized in the SSMP.

#### **SWRCB Requirement:**

The collection system agency shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- (a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- (b) A program to ensure appropriate response to all overflows;
- (c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Plan (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDR or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (f) A program to ensure that all reasonable steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

## **6.2 Element 6 Appendix**

Supporting information for Element 6 is included in Appendix E. This appendix includes the following documents:

1. Public Works Department Sanitary Sewer Overflow Response Plan
2. Maintenance Division Sanitary Sewer Overflow Response Operational Guidelines
3. Maintenance Division Standard Operating Procedures for Sewer Pump Station Failure

## **6.3 Overview of Sewer Overflow Response Documents**

The City has three separate documents that define procedures and guidelines for responding to sewer overflows or other sewer-related emergencies (e.g., stoppages or pump station failures).

The Sanitary Sewer Overflow Response Plan (SORP) has been adopted as a general City policy and provides the overarching overflow emergency response procedures from the receipt of a sewer overflow complaint, through response and cleanup, to reporting of the overflow to the appropriate government agencies. This document is relevant to anyone involved in the overflow response process, including the person initially receiving information about SSOs, the response field crew and supervisor, the person responsible for submitting overflow reports, and other emergency responders who could potentially be involved in the process (police and fire departments).

The Sanitary Sewer Overflow Response Operational Guidelines adopted by the Maintenance Department to provide detailed response procedures to the first responder and field crew responsible for identifying the source of the problem, correcting the cause of the overflow, and cleaning the surrounding area. The guidelines also include forms that the responder needs to fill out. This document is most relevant to maintenance staff responsible for responding to overflows.

The Standard Operating Procedures for Sewer Pump Station Failure provide brief instructions on who to contact and how to respond in the case of a failure at either of the City's three pump stations (Pine Lane, Blue Oak Lane, and Van Buren). This document is most relevant to maintenance staff responsible for responding to a pump station failure.

The Overflow Response Plan and Overflow Response Operational Guidelines are summarized in the following subsections. These two documents and the Standard Operating Procedures for pump station failure are included in Appendix E. These documents provide the procedures and guidelines necessary for fulfilling both the RWQCB and SWRCB emergency response plan requirements.

## 6.4 Summary of Sanitary Sewer Overflow Response Plan

The City's overflow response plan is divided into 10 sections, as follows:

- I. Authority
- II. General (objectives and organization)
- III. Overflow Response Procedure
- IV. Public Advisory Procedure
- V. Regulatory Agency Notification Procedure
- VI. SSO Reporting (CIWQS)
- VII. Water Quality Monitoring Requirements
- VIII. Record Keeping
- IX. Media Notification Procedures
- X. Distribution and Maintenance of SORP

Objectives of the City's SORP are to protect public health and the environment, satisfy regulatory agency requirements, and minimize risk of enforcement actions against the City. Additional objectives include providing appropriate customer service and protecting City personnel, the collection system and facilities, and private and public property.

### Initial Notification and Response

Section III of the plan details response procedures from initial notification through field response and internal reporting. Subsections include the following:

- A. *Receipt of Information Regarding an SSO*: This subsection provides the contact numbers and chain of communication for receiving overflow reports, including pump station failures. This subsection also details the information that should be obtained regarding the overflow. Refer to Element 2 (Organization) of this SSMP for a flow chart depicting the chain of communication.
- B. *Dispatch of Appropriate Crews to Site of Sanitary Sewer Overflow*: This subsection details protocols for dispatching appropriate crews and equipment and discusses additional communication between the response crew and supervisors. Guidelines for completing and documenting a preliminary damage assessment are provided, and coordination with any hazardous material response is explained.
- C. *Overflow Correction, Containment, and Clean-Up*: This subsection describes the responsibilities of the response crew while on-site. Upon arrival, the crew is responsible for determining the cause of the overflow, assessing the need for additional equipment or assistance, notifying the dispatcher to contact the Santa Clara County Department of Environmental Health if private property is affected, and taking immediate steps to stop the overflow. This subsection also discusses measures that should be taken for containment, sampling, and site cleanup. Section IV of the plan is referenced for determining whether public advisory notices are to be posted.

For more detailed information on the actual methods for containing an overflow, removing a blockage, and cleaning up a site, response crews should refer to the Maintenance Division's SSO Response Operational Guidelines.

- D. *Overflow Report*: The Sewer Division Maintenance Supervisor is responsible for submitting an overflow report to the Maintenance Services Manager. This subsection details the information to be included in the report, including indication whether the overflow reached surface waters, start and stop time of the overflow, overflow volume, and damage assessment.

Officials receiving immediate notification of the SSO vary depending on the size of the spill and whether or not the spill contains hazardous materials, affects surface waters, or has the potential to impact human health. Appendix E, Document 1 lists these officials, and the circumstances under which they are notified immediately.

### Public and Media Notification

Sections IV (Public Advisory Procedures) and IX (Media Notification) of the plan discuss circumstances under which the public should be notified of an SSO and establish responsibilities for posting notices or contacting the media. Potential public notification measures include temporary signage to indicate any polluted surface water or groundwater due to an SSO and notification through media outlets. The Maintenance Services Manager is responsible for determining whether temporary signage and further notification are necessary. The Maintenance Services Manager, in conjunction with the Public Information Coordinator, is the contact person for all media notification.

### Agency Notification

Section V of the response plan details immediate (2-hour) notification requirements to the Santa Clara County Department of Environmental Health, RWQCB and the California Office of Emergency Services (OES).

This section also provides contact information for additional agencies that may need to be contacted, including the City of Palo Alto Department of Public Works, the Palo Alto Regional Water Quality Control Plant, and the City of Mountain View Department of Public Works.

### Agency Reporting

Section VI of the response plan provides SWRCB SSO category definitions, including private lateral sewage discharges (PLSDs). It also provides timeframes for CIWQS Online SSO Database reporting, certification and voluntary PLSD reporting, as well as "No Spill" certification and timelines for amending SSO reports. Subsection E describes in detail the information required to be included in draft and certified CIWQS SSO reports.

Subsection B provides information on SSO technical report requirements and timeframe (within 45 days) following large Category 1 SSOs where greater than 50,000 gallons are spilled to surface waters.

This section concludes with a table that summarizes notification and reporting requirements and timeframes for each SSO category, and lists agency names and contact numbers.

### **Water Quality Monitoring Requirements**

Section VII describes SWRCB requirements and timeframe (within 48 hours) for water quality monitoring to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters.

### **Record Keeping**

Section VIII lists record keeping requirements to demonstrate compliance with all provisions of the SSS WDRs for its sanitary sewer system, including General Records, SSO Records, SSMP Change Records and Monitoring Records. Records must be available to RWQCB and SWRCB during inspections or upon request.

### **Distribution, Updates, and Training**

In addition to Maintenance Services Department staff, Section X of the response plan specifies additional departments and staff that should receive the plan, including the Police Department, Fire Department, and Risk Manager. This section also provides for annual review and update of the plan, as well as annual training sessions for personnel.

## **6.5 Sanitary Sewer Overflow Response Operational Guidelines**

The SSO Response Operational Guidelines are a collection of flowcharts, forms, and detailed response procedures directed at first responders and response crews. The Guidelines are divided into two main sections. The first section includes procedures and forms for responding to a sewer backup into a home or business, and the second includes procedures and forms for responding to an SSO in a public street.

### **Sewer Backup into Home or Business**

This section includes flow charts to determine the source of the backup, instructions on filling out the appropriate forms, and tips for communicating effectively with homeowners. Forms to be filled out include a first responder form, which describes the location of the backup and provides an initial damage assessment, building history form, and lateral TV report. This section also includes a claim letter and form to provide to the homeowner or property manager.

### **Sanitary Sewer Overflows**

This section includes procedures and instructions for containment, blockage clearing, and area cleanup for an SSO. Guidelines for estimating spill volume, as well as the reporting form to be filled out are also included.

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## **Element 7: FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM**

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This section of the SSMP discusses the City's FOG control measures, including identification of problem areas, focused cleaning, and source control. This section fulfills the FOG Control requirement for both the RWQCB (Element 4) and the SWRCB (Element 7) SSMP requirements.

### **7.1 Regulatory Requirements for FOG Control Element**

The requirements for the FOG Control element of the SSMP are summarized below:

#### **RWQCB Requirement:**

The City must evaluate its service area to determine whether a Fats, Oils, and Grease (FOG) control program is needed. If so, a FOG control program shall be developed as part of the SSMP. If the City determines that a FOG program is unnecessary, proper justification must be provided.

#### **SWRCB Requirement:**

The City shall evaluate its service area to determine whether a FOG control program is needed. If the City determines that a FOG program is not needed, the City must provide justification for why it is not needed. If FOG is found to be a problem, the City must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- (a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
- (b) A plan and schedule for the disposal of FOG 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 FOG generated within a sanitary sewer system service area;
- (c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
- (d) Requirements to install grease removal devices (such as traps or interceptors) design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
- (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance;
- (f) An identification of sewer system sections subject to FOG blockages and establish a cleaning maintenance schedule for each section; and
- (g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.

## 7.2 Element 7 Appendix

Supporting information for Element 7 is included in Appendix F. This appendix includes the following documents:

1. List of food facilities in Los Altos (potential grease dischargers)
2. Blank restaurant inspection form
3. Sample FOG inspection follow-up letter
4. “Preventing Sewer Backups” public outreach brochure
5. ABAG “sewersmart.org” FOG brochure
6. Watershed Watch brochure
7. List of sewers cleaned on a 30/60/90-day schedule, with FOG lines indicated

## 7.3 FOG Control Discussion

The City has determined that a FOG control program is necessary per SSMP requirements. Over 100 food service establishments (FSE) are located within City limits and discharge to City sewers. Operations and maintenance staff have also noted the tendency for grease buildup in specific sewer lines. This section discusses measures the City takes to control FOG.

The City’s FOG control program consists of focused cleaning and maintenance as well as source control. The following subsections discuss identification and cleaning of grease-prone areas, legal authority to prohibit grease discharge or require a grease removal device, facility inspection, and public outreach.

### Identification and Sewer Cleaning

The core means for FOG control utilized by the City are identification of trouble spots or sewer lines that are likely prone to grease accumulation, targeted cleaning of these areas on 30- or 60-day schedules and chemical root control measures to inhibit the growth of roots where grease may accumulate.

- a. Identification of Grease Problem Areas. The City identifies potential grease problem areas by tracking locations and causes of dry weather blockages and SSOs. For instance, in reporting year 2014, six of the City’s eighteen SSOs were attributed to grease. (Eleven were due to roots and one was due to vandalism). Additionally, debris type and severity are noted by maintenance crews during routine focused cleaning. Areas with several restaurants or grease-producing facilities are also considered likely potential grease problem areas.

## Element 7: Fats, Oils and Grease (FOG) Control Program

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- b. Focused Cleaning. Approximately 33,000 lf of sewers (5% of the system) are included in the focused cleaning program specifically for FOG control, with cleaning on a 30-, 60- or 90-day schedule. Cleaning frequency depends on the history of stoppages or overflows on a line, as well as areas expected to be prone to grease buildup. Table 7-1 summarizes the total length of sewers cleaned for grease control by frequency. The City’s downtown area has the highest concentration of restaurants; therefore, lines in this area are cleaned on either a 30-day or a 60-day schedule.

**Table 7-1. Length of Sewers in Focused Cleaning Program for FOG Control**

Cleaning Frequency (days)	Length (feet)
30	9,000
60	12,000
90	12,000
Total (feet)	33,000
Total (feet/year)	228,000

The City’s Maintenance Division maintains tables of each manhole to manhole reach scheduled for focused cleaning. These tables are also used as cleaning logs, on which maintenance workers note the date and time of flushing, as well as the debris type and severity.

The focused cleaning program also includes additional lines that are cleaned for reasons other than FOG. Additional information on this program, including a figure showing all lines in the program, is included in Element 4: Operation and Maintenance Program. The cleaning footages tabulated in that section include the above FOG line footages.

Sewers smaller than 15 inches in diameter that are not included in the focused cleaning program are cleaned on an 18-month cycle.

- c. Root Foaming Program. The City has a cyclic root foaming program and covers approximately one-third of the system per year. Since grease tends to accumulate on roots, this program helps prevent grease-related stoppages in areas that are not included in the focused cleaning program.
- d. Blockage Investigation. The City CCTV inspects each sewer following a blockage. If the source of the grease in a lateral can be identified, the City contacts that restaurant or source of grease.

Additional information about cleaning and maintenance is included in Element 4: Operation and Maintenance Program.

### Legal Authority

Legal measures available to the City to control sources of FOG include the following:

- Authority to prohibit discharges
  - Requirement of grease removal device and cleaning log
  - Enforcement measures, as appropriate
- a. Legal authority to prohibit discharges. Article 10.08.220 of the City's municipal code prohibits grease disposal, as follows:

No person shall dispose of any grease, or cause any grease to be disposed, by discharge into any drainage piping, by discharge into any public or private sanitary sewer, by discharge into any storm drainage system, or by discharge to any land, street, public way, river, stream, or other waterway. (Prior code § 5-5.622)

- b. Requirement of grease removal device. Article 10.08.280 of the City's municipal code requires a grease removal device for every commercial or industrial generator of grease, as of 1997. This article also requires the business to clean out the grease removal device at least every six months and to keep a log of all grease removal cleaning. The log must be available for inspection for a 3-year period. The text of this article is included below:

- A. The owner of every newly constructed, remodeled, or converted commercial or industrial facility with one or more grease generating activities, including food service facilities with new or replacement kitchens, for which a building permit is issued on or after January 1, 1992, shall install or cause to be installed a grease interceptor for each grease generating activity, of a size equal to or greater than the minimum size meeting the definition of "grease removal device," as set forth in Section 108 of the then currently adopted edition of the Uniform Plumbing Code.
- B. The owner of every commercial or industrial generator of grease, including food service facilities, serviced by a sewer collection line found to have a grease blockage, a history of grease blockage, or accelerated line maintenance resulting from grease disposal shall install or cause to be installed, upon notification by the superintendent of the plant, a grease removal device.
- C. The owner of every commercial or industrial generator of grease, including food service facilities, for which installation of grease removal devices is not required pursuant to subsections (a) or (b) of this section, shall install or cause to be installed a grease removal device for each grease generating activity, on or before January 1, 1997.
- D. All grease removal device(s) shall be installed on the premises where grease is used or generated and shall be sized in conformance with Chapter 7 of the then currently adopted edition of the Uniform Plumbing Code. The contents of all grease removal devices shall be removed periodically as necessary to prevent violations of this chapter. At a minimum, the contents shall be removed every six months. All grease removal devices shall be kept in good repair, and shall be maintained in continuous operation. A log of all grease removal activities shall be maintained at the facility showing the date of removal, the amount removed and the disposition of the removed contents. The log shall be retained for a period of three years, and shall be available for inspection by city inspectors upon request. (Prior code § 5-5.628).

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## Element 7: Fats, Oils and Grease (FOG) Control Program

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- c. Enforcement. The ordinance includes enforcement measures for violations of any sewer protection measure, including grease discharge. These measures range from issuance of a notice of non-compliance to criminal penalties. Facilities found to be in violation of the grease ordinance are typically issued a notice of non-compliance, as allowed in Article 10.08.470:
- A. Unless the superintendent finds that the severity of the violation warrants immediate action under this chapter, or permit revocation or suspension, he or she shall issue a notice of noncompliance which:
    - 1. Enumerates the violations found; and
    - 2. Orders compliance by a date certain.
  - B. If the violations are not abated in the time period identified further action may be taken by the Superintendent including, but not limited to, suspension, revocation or modification of the discharger's permit. (Prior code § 5-5.648)

### Facility Inspections

Through utilization of a contract inspection service provider, EEC Environmental, the City of Los Altos conducts FOG inspections of the food service establishments (FSEs) within the City service area. These FOG inspections are conducted to evaluate each FSE's compliance with the Los Altos Municipal Code (LAMC) and provide FOG Program outreach and educational to the FSE community.

Section 10.08.280 of The LAMC requires FSEs to have a grease control device (GCD) and to conduct complete pump-out of the GCD's entire contents periodically to prevent FOG from entering the collection system. Each GCD in the City is opened during the FOG inspection process and the level of floating FOG and solid materials within the GCD is assessed. If the combined floating FOG and accumulated solid materials exceeds 25% of the total hydraulic depth of the GCD, the GCD is considered to be non-compliant and in need of maintenance service (i.e., "25% Rule").

The FSEs that are inspected are required to address program deficiencies identified during the inspection. Incorporation of the inspector's corrective actions recommendations assists the FSE in complying with the rules and regulations of the City's FOG Control Program.

During each inspection, inspection staff also stress the importance of kitchen best management practices (BMPs). Implementation of such practices decreases the amount of FOG allowed into sinks and drains, thereby reducing accumulation within the GCD and preventing sewer line backups and SSOs.

During CY2014, a total of 117 FOG inspections of the City's FSEs were conducted. A current list of FSEs within the City (as provided by the Santa Clara County Department of Environmental Health) is included in Appendix F. This list also identifies the inspection priority assigned to each FSE as well as key comments on compliance issues identified during the 2014 inspection program.

**Public Outreach**

The City produces a brochure entitled “Preventing Sewer Backups.” In addition to other means of reducing backups or blockages, this brochure discusses grease and the role of fats, oils, and grease in causing blockages. This brochure is displayed at City Hall and is also available from the City’s website: (<http://www.losaltosca.gov/>). Additionally, sewer maintenance staff provide this brochure to residents who are affected by a blockage or backup. A copy of the brochure is included in Appendix F.

Through their partnership fees to the Palo Alto Regional Water Quality Control Plant, the City also supports public outreach campaigns developed by the Plant. The Plant developed a FOG public outreach poster targeted to residential dischargers in all of the communities that discharge to the plant, including the City of Los Altos. In addition to discouraging discharge of FOG to the sewers, this public outreach poster directs residents how to properly dispose of FOG. A copy of this public outreach poster is included in Appendix F.

The Plant provides outreach to the public throughout the year and also in partnership with the Bay Area Pollution Prevention Group (BAPPG) during the November and December holiday season. BAPPG outreach includes Facebook advertisements and radio advertisement for both English and Spanish speakers. Future plans include production of a door hanger which can be used in residential areas where FOG backups occur more regularly.

**Table 7-2. Summary Table With Respect to Possible FOG Elements Identified by the State**

<b>State Element</b>	<b>Los Altos</b>
(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG	Residential FOG not currently identified as a major SSO factor. The Los Altos web site and RWQCP outreach programs are sufficient at this time. The routine inspection program planned is anticipated to be sufficient for restaurants.
(b) A plan and schedule for the disposal of FOG 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 FOG generated within a sanitary sewer system service area	Mission Trails (contract refuse collection company) collects residential FOG curbside in Los Altos.
(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG	Los Altos FOG program includes adequate legal authority to prohibit discharges and to identify measures to prevent SSOs and blockages from FOG.

## Element 7: Fats, Oils and Grease (FOG) Control Program

State Element	Los Altos
(d) Requirements to install grease removal devices (such as traps or interceptors) design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements	Los Altos has an ordinance that requires grease interceptors for all new or remodeled food service facilities. The ordinance was updated to (1) clarify alternatives in instances where such devices are impractical to install and (2) reflect terminology in the revised Uniform Plumbing Code.
(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance	Los Altos has adequate authority. The City contracts out inspection work to enforce the ordinance with respect to assuring that the grease removal facilities are properly cleaned and maintained.
(f) An identification of sewer system sections subject to FOG blockages and establish a cleaning maintenance schedule for each section	Los Altos has identified sewer sections subject to FOG and has an on-going regular maintenance schedule for all of these sections. Los Altos will continue to address any newly defined section subject to FOG in the same manner.
(g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above	At this time, the cleaning schedule appears sufficient to prevent FOG overflows. The City has implemented a program of enhanced inspection and enforcement of grease generating facilities to further reduce FOG discharges to the City's sewer system.

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## Element 8: SYSTEM EVALUATION AND CAPACITY MANAGEMENT

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This section of the SSMP discusses the City's capacity management measures, including the most recent Master Plan and recommended capacity improvement projects. This section fulfills the System Evaluation and Capacity Management requirement of both the RWQCB (Element 8) and the SWRCB (Element 8) SSMP requirements.

### 8.1 Regulatory Requirements for Capacity Management

The requirements for the System Evaluation and Capacity Management element of the SSMP are summarized below.

#### **RWQCB Requirement:**

The RWQCB System Evaluation and Capacity Management requirement is divided into two sections:

- (a) Capacity Assessment: The wastewater collection system agency shall establish a process to assess the current and future capacity requirements for the collection system facilities. The SSMP should describe whether a current capacity assessment has been prepared, and if not, provide a schedule of activities for completing an assessment.
- (b) System Evaluation and Capacity Assurance Plan: The wastewater collection system agency shall prepare and implement a capital improvement plan to provide hydraulic capacity of key sewer system elements under peak flow conditions. Once the capacity assessment described in (a) above has been completed, a capital improvement program must be implemented to address any capacity needs. The SSMP should briefly describe the capital improvements anticipated and be updated as implementation occurs and priorities change.

#### **SWRCB Requirement:**

The wastewater collection system agency shall prepare and implement a capital improvement plan that will provide hydraulic capacity of key sewer system elements under peak flow conditions. This plan must include:

- (c) Evaluation: The agency must identify actions needed to evaluate those portions of the sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows, estimates of the capacity of key system components, hydraulic deficiencies, and the major sources that contribute to the peak flows associated with overflow events.
- (d) Design Criteria: Where design criteria do not exist or are deficient, the agency should undertake the evaluation identified in (a) above to establish appropriate design criteria.
- (e) Capacity Enhancement Measures: The agency must identify the steps needed to establish a short- and long-term capital improvement plan (CIP) to address identified hydraulic

deficiencies including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

- (f) Schedule: The agency shall develop a schedule of completion dates for all portions of the CIP developed in (a) through (c) above. This schedule shall be reviewed and updated at least every five years.

### 8.2 Element 8 Appendix

Supporting information for Element 8 is included in Appendix G. This appendix includes the following document:

1. Schedule of Proposed Sewer Capital Improvement Projects through FY 26/27.

### 8.3 Capacity Evaluation Discussion

The City completed a comprehensive Sanitary Sewer Master Plan in July 2005, which was updated in 2011. The Master Plan included a capacity evaluation and identified capacity-related improvement projects. The Master Plan is a separate document from this SSMP; this section of the SSMP summarizes key capacity-related portions of the Master Plan. The complete Master Plan is available on the City's website: <http://www.losaltosca.gov/publicworks/page/sanitary-sewer-master-plan>.

The capacity assessment completed as part of the City's Sewer Master Plan was based on hydraulic modeling of the City's collection system under current and future design flows. The following sub-sections provide a brief summary of the modeled system, flow estimates, and evaluation criteria used for the City's sewer system capacity evaluation.

Note that the City has not experienced any sanitary sewer overflows due to hydraulic deficiencies in the sewer system. Likewise, modeling of the City's sewer system conducted during the preparation of the 2005 Sewer Master Plan also showed no overflows due to hydraulic deficiencies. Similarly, no new conditions that would cause hydraulic deficiencies were identified in the 2011 Master Plan Update.

#### Hydraulic Model

As a part of the City's 2005 Sewer Master Plan, a hydraulic model was developed using MOUSE modeling software to evaluate existing and future system capacity. MOUSE is a fully dynamic hydraulic model that allows realistic representation of changes in flow over time as well as surcharging and backwater effects due to capacity limitations. Refer to Chapter 4 of the Master Plan Update for a complete discussion of the model development.

Nearly all of the City's 140 miles of sewer pipes, ranging in size from 6 to 42 inches in diameter, were included in the model. As discussed in previous sections of this SSMP, the City also receives flow from a portion of the Town of Los Altos Hills (Town) as well as from a small portion of the City of Mountain View. No pipes from these outside agencies were included in the model, but the model did include flow inputs at the locations where flows from these agencies

discharge to the City’s system. In general, flows from the Town enter the City at the upstream ends of the system, whereas flows from Mountain View only enter the major downstream trunk sewer. The City’s pump stations were not included in the model, but pump station capacities were compared to estimated flows to determine whether or not the pump stations had adequate capacity.

### Flow Estimates

As noted above, flows were considered from within the City, as well as from the Town and the City of Mountain View. Refer to Chapter 5 of the 2011 Master Plan Update for a complete discussion of the model flow estimates.

City. Existing and future flows for the 2005 Master Plan were estimated based on the City’s General Plan 2002-2020. Future flows were adjusted for the Master Plan Update based on changes to the City’s 2009 General Plan Housing Element. Flows were initially estimated based on a combination of parcel land uses and land use flow factors and then adjusted based on comparisons to water use data. The City is largely built out. Population within the City is expected to grow by only 3.8 percent between year 2002 and year 2020 (from 27,693 to 28,741).

Town. Flow from the Town was estimated based on the Town’s 2004 Sewer Master Plan, plus additional analysis performed as part of the City’s 2005 Master Plan and 2011 Master Plan Update. The Town has many under-developed parcels and parcels that are currently served by on-site septic systems. Ultimately, these parcels are expected to connect to the collection system and increase the flow discharged to the City’s system from the Town. Further development and conversions from septic systems to sewers were considered in the City’s capacity evaluation.

City of Mountain View. Flow from the City of Mountain View tributary to the City’s trunk sewer was estimated in the Mountain View August 2010 Master Plan Update. Like the City, the City of Mountain View in the area that discharges to Los Altos’ sewer system is largely built out and only minor increases in flow are anticipated.

Current and future average daily base wastewater flows are summarized in Table 8-1. As discussed under Capacity Evaluation Criteria below, peak wet weather flows were projected to be five times greater than average daily flows.

**Table 8-1. Average Daily Flow Projections<sup>a</sup>**

Agency	Current (2002) Flow (mgd)	Build Out Flow (mgd)
City of Los Altos	2.64	2.73
Town of Los Altos Hills	0.24	0.56
<b>Subtotal</b>	<b>2.88</b>	<b>3.29</b>
City of Mountain View	0.57	0.66
<b>Total</b>	<b>3.45</b>	<b>3.95</b>

a. Information from the Sanitary Sewer Master Plan (2011 Update), Table ES-1.

### Capacity Evaluation Criteria

The capacity evaluation criteria used in the Master Plan Update are summarized below. Refer to Chapter 6 of the Master Plan Update report for a complete discussion of the capacity evaluation criteria.

Flow Criteria. System capacity was evaluated under existing and future peak wet weather flows. Wet weather flow monitoring data during the winter of 2002 were insufficient for estimating rainfall-induced peak wet weather flows, as only two small rainfall events occurred during the monitoring period. Therefore, a wet weather peaking factor of 5 was assumed throughout the City based on a comparison of model results to daily flows for large storm events as measured at the Los Altos permanent meter maintained by the RWQCP. According to this comparison, a peaking factor of 5 would be expected to be comparable to the peak flow produced by a 5- to 10-year frequency, 24-hour duration storm.

Gravity Pipe Criteria. A pipe was considered to be capacity deficient if the model predicted that it would surcharge during peak wet weather flow conditions due to a flow greater than the capacity of the pipe. Pipes surcharged due to backwater were not considered to be capacity deficient.

Force Main Criteria. Force mains were considered to be capacity deficient if the modeled peak velocity was greater than 7 feet per second (fps).

Pump Station Criteria. Pump stations were considered to be capacity deficient if the predicted peak flow entering the pump station exceeded the pump station firm capacity (capacity with one pump out of service).

### Capacity Evaluation Results

The 2005 Master Plan capacity evaluation identified three gravity sewer sections and two pump stations with insufficient hydraulic capacity under current or future peak wet weather flow conditions. These limitations are summarized below; however, each limitation has been addressed by a CIP project that has either been completed, is in design/construction, or has been deemed unnecessary. No additional current or future capacity deficiencies were identified in the 2011 Master Plan Update. For a complete discussion, refer to Chapter 6 of the 2011 Master Plan Update report.

## 8.4 Recommended Capacity Projects

This section discusses criteria used to size replacement pipes and summarizes the recommended capacity improvement projects. Refer to Chapter 7 of the Master Plan for a complete discussion of the capacity evaluation recommendations.

### Design Criteria

The minimum size for relief sewer is 8-inch diameter. New sewers 8 inches in diameter were sized to flow 2/3 full under peak wet weather flow conditions. Larger pipes were sized to flow full under peak wet weather flow conditions. No change from the existing pipe slope was assumed.

**Recommended Capacity Improvements**

The 2005 Sewer Master Plan recommended replacement sewers for the three gravity pipe hydraulic deficiencies noted in the capacity evaluation. Project status is summarized in Table 8-2. No new current or future capacity improvement projects were identified in the 2011 Master Plan Update.

**Table 8-2. Summary of Recommended Capacity Improvements**

<b>Capacity Limitation Area</b>	<b>Project Name</b>	<b>Brief Description</b>	<b>Project Status</b>
1	H1 South Replacement Sewer	4,180 lf of new 15-inch diameter sewer and 4,280 lf of new 18-inch diameter sewer.	Completed (except for 18-inch sewer mains along Fremont Avenue)
2	H2 Fallen Leaf Lane Replacement Sewer	2,260 lf of new 8-inch diameter sewer.	Completed
3	H3 North Replacement Sewer	6,210 feet of new 10-inch diameter sewer.	No longer required
Pine Lane PS	P1 New Pine Lane Pump Station Relocation Study	If Town flow is diverted, the pump station capacity will not need to be increased. Relocate pump station to improve site access.	Completed
	P2 New Pine Lane Pump Station	New pump station	Completed
Van Buren PS	P3 Van Buren Pump Station	In addition to other rehabilitation measures, provide duty and standby pumps.	Completed

**8.5 CIP Schedule**

The City does not anticipate the need for any additional capacity related CIP projects.

**8.6 Financial and Economic Analysis**

Chapter 9 of the Master Plan Update includes a financial analysis for funding the capital improvement program. This analysis considers the entire CIP, not just the capacity related improvements. The analysis assumed implementation of the CIP over 15 years.

This assessment concluded that the City could finance the CIP on a pay-as-you go basis, using revenue from City and County rate payers and Town payments. Refer to Chapter 9 of the Master Plan Update for a complete discussion of funding for the CIP.

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## **Element 9: MONITORING, MEASUREMENT, & PROGRAM MODIFICATIONS**

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This section of the SSMP discusses parameters the City tracks to monitor the success of the SSMP and how the City plans to keep the SSMP current. This section fulfills the Monitoring, Measurement, and Program Modifications requirement for both the RWQCB (Element 9) and the SWRCB (Element 9) SSMP requirements.

### **9.1 Regulatory Requirements for Monitoring, Measurement, & Program Modifications**

The requirements for the Monitoring, Measurement, and Program Modifications element of the SSMP are summarized below:

#### **RWQCB Requirement:**

The City must monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audit as appropriate. The SSMP should discuss performance indicators to be tracked and a description of how the City plans to keep the SSMP up-to-date.

#### **SWRCB Requirement:**

The City shall:

- (a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
- (b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
- (c) Assess the success of the preventative maintenance program;
- (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and
- (e) Identify and illustrate SSO trends, including: frequency, location, and volume.

### **9.2 Element 9 Appendix**

Supporting information for Element 9 is included in Appendix H. This appendix includes the following document:

1. Element 9: SSMP Monitoring Tracking Sheet

### **9.3 Monitoring and Measurement Discussion**

The City already tracks several performance measures through tracking logs and annual reports, including but not limited to number, cause and location of stoppages; number, cause, location, and volume of SSOs; stoppage response time; number and reason for customer complaints; length of pipe cleaned and type of debris found, and length of pipe root foamed. The City plans to continue tracking all performance measures that are currently tracked.

In order to monitor the effectiveness of the SSMP, however, the City has selected certain, specific parameters that can be documented and compared on an annual basis in a simple format. These parameters were selected because they are straightforward, quantitative, and focused on results. Although the parameters may not track everything associated with SSMP implementation, changes in these parameters over time will indicate the overall success of the SSMP or, conversely, underlying problems that can then be investigated further.

Table 9-1 lists each SSMP element, the overall purpose of the SSMP element, and the specific parameters that the City plans to track that will help in evaluating the effectiveness of the SSMP. Appendix H includes a tracking sheet listing each of these parameters, which the City will fill out annually in conjunction with completing the SSMP audit (Element 10).

**Table 9-1. SSMP Monitoring Parameters, by SSMP Element**

<b>SSMP Element</b>	<b>Summary of Element Purpose</b>	<b>Parameters for Tracking Effectiveness (Annual)</b>
1-Goals	Establish priorities of City and provide focus for City staff	None needed
2-Organization	Document organization of City staff and chain of communication for SSO response	None needed
3-Legal Authority	Ensure the City has sufficient legal authority to properly maintain the system	None needed

**Element 9: Monitoring, Measurement, & Program Modifications**

<b>SSMP Element</b>	<b>Summary of Element Purpose</b>	<b>Parameters for Tracking Effectiveness (Annual)</b>
4-Operation and Maintenance Program	Minimize blockages and SSOs by properly maintaining the system and keeping the system in good condition	<ul style="list-style-type: none"> <li>▪ Total number and volume of SSOs</li> <li>▪ Number of repeat SSOs (same location as any previous SSO, regardless of year of occurrence)</li> <li>▪ Total number of mainline blockages</li> <li>▪ Number of pump station failures</li> <li>▪ Number of pipe failures</li> <li>▪ Length of pipe CCTV'd</li> <li>▪ 3-yr backlog for rehabilitation and repair projects</li> </ul>
5-Design and Performance Provisions	Ensure new facilities are properly designed and constructed	None needed
6-Overflow Emergency Response Plan	Provide timely and effective response to SSO emergencies and comply with regulatory reporting requirements	<ul style="list-style-type: none"> <li>▪ Average and maximum response time</li> <li>▪ Percent of total overflow volume contained or returned to sewer</li> </ul>
7-Fats, Oils, & Grease (FOG) Control Program	Minimize blockages and overflows due to FOG	<ul style="list-style-type: none"> <li>▪ Number of blockages due to FOG</li> <li>▪ Number of overflows due to FOG</li> <li>▪ Number of FOG producing facilities inspected</li> </ul>
8-System Evaluation and Capacity Management	Minimize SSOs due to insufficient capacity by evaluating system capacity and implementing necessary projects	<ul style="list-style-type: none"> <li>▪ Number of SSOs due to capacity limitations or wet weather</li> <li>▪ Date of completion of most recent capacity evaluation</li> <li>▪ 3-year backlog for capacity improvement projects</li> </ul>
9-Monitoring, Measurement, & Program Modifications	Evaluate effectiveness of SSMP, keep SSMP up-to-date, and identify necessary changes	None needed
10-SSMP Program Audits	Formally identify SSMP effectiveness, limitations, and necessary changes on an annual basis	<ul style="list-style-type: none"> <li>▪ Date of completion of last annual audit</li> </ul>
11-Communication Program	Communicate with the public and satellite agencies.	None needed

The City will use the specific tracked parameters listed in Table 9-1 and documented on the tracking sheet included in Appendix H to assist in completion of the annual SSMP Audit described in Element 10. As noted above, the City will also continue to collect data for all performance measures currently tracked. This additional information that the City collects, such as customer complaints and length of pipe cleaned, will be used to support or further evaluate the successes and limitations of the SSMP as needed.

### **9.4 SSMP Modifications**

The SSMP needs to be updated periodically to maintain current information, and programs need to be enhanced or modified if they are determined to be less effective than needed. The City will review the successes and needed improvements of the SSMP as part of the SSMP annual audit, described in Element 10.

City staff will update critical information, such as contact numbers and the SSO response chain of communication, as needed. A comprehensive SSMP update will occur every 5 years, as required by the SWRCB. The City will schedule this SSMP update to occur in conjunction with each Sanitary Sewer Master Plan Update.

## Element 10: SSMP PROGRAM AUDITS

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This section of the SSMP discusses the City's SSMP auditing program. This section fulfills both the RWQCB (Element 10) and the SWRCB (Element 10) SSMP Program Audit requirements.

### 10.1 Regulatory Requirements for SSMP Program Audits

The requirements for the SSMP Program Audits element of the SSMP are summarized below:

#### **RWQCB Requirement:**

The City shall conduct an annual audit of its SSMP that includes any deficiencies and steps to correct them that are appropriate to the size of the City's system and the number of overflows. The City must submit a report of the audit to the RWQCB by March 15 of the year following the calendar year for which the analysis applies.

#### **SWRCB Requirement:**

As part of the SSMP, the City shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the City's compliance with the SSMP requirements identified in subsection (D.13) of the SWRCB WDR, including identification of any deficiencies in the SSMP and steps to correct them.

### 10.2 Element 10 Appendix

1. Completed SSMP audits are stored in Appendix I.

### 10.3 SSMP Audits Discussion

The City will complete audits of the SSMP each year, and will include an audit report with the annual SSO report submitted to the RWQCB by March 15. The audit will include the following:

- Review of progress made on development of SSMP elements
- Review of monitoring and measurement tracked under Element 9
- Identification of successes of implementing SSMP elements and needed improvements
- Description of system improvements during the past year
- Description of system improvements planned for the upcoming year, with an estimated schedule for implementation

Upon completion of the audit, the City will keep a report of the audit on file to fulfill the SWRCB audit requirement. A copy of the last 3 audits will be stored in Appendix I of the SSMP.

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## Element 11: COMMUNICATION PROGRAM

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This section of the SSMP discusses the City’s communications with the public and satellite agencies. This section fulfills the Communication Program requirement for SWRCB (Element 11). The RWQCB has no equivalent requirement.

### 11.1 Regulatory Requirements for Communication Program

The requirements for the Communication Program element of the SSMP are summarized below:

#### **RWQCB Requirement:**

None.

#### **SWRCB Requirement:**

The City shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the City as the program is developed and implemented. The City shall also create a plan of communication with systems that are tributary and/or satellite to the City’s sanitary sewer system.

### 11.2 Element 11 Appendix

Supporting information for Element 11 is included in Appendix J. This appendix includes the following documents:

1. Partners Mailing List (contact list for the Palo Alto Regional Water Quality Control Plant partners – includes the City’s satellite agencies).

### 11.3 Communication Program Discussion

The City maintains a website (<http://www.losaltosca.gov/>) to inform the public about City activities. The City’s website is an effective communication channel for providing alerts and news to the public. The main page of the website provides important announcements, agendas and minutes for City Council meetings, and other key information for City residents. Various public works documents are published on the City’s public works department page of the website, including the City’s most recent Sanitary Sewer Master Plan.

The City plans to publish this SSMP on the City website. The completed SSMP will be certified by the City Council during a public city council meeting. The City will also use the website to notify the public of important upcoming activities related to sewer system management.

Agencies with which the City needs to communicate regularly include the Town of Los Altos Hills and the City of Mountain View, which both discharge some flow to the City’s sewer system, as well as the Palo Alto Regional Water Quality Control Plant (RWQCP), which accepts and treats flow from the City. The City and its satellite agencies attend quarterly partners

## **Element 11: Communication Program**

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meetings at the Palo Alto RWQCP, at which both treatment plant and collections system issues are discussed.

The City will also review the need for regular communications with Foothill College, which has a private sewer system that discharges to the City's system.